University of Alberta

Ta'Tla Mun: An Archaeological Examination of Technology, Subsistence Economy and Trade at Tatlmain Lake, Central Yukon

By

Christian Daniel Thomas ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Arts

Department of Anthropology

Edmonton, Alberta

Spring 2003

National Library
of Canada

Acquisitions and
Bibliographic Services

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale
du Canada

Acquisitions et
services bibliographiques

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-82218-4

Canada

University of Alberta

Library Release Form

Name of Author: Christian Daniel Thomas

Title of Thesis: *Ta'Tla Mun*: An Archaeological Examination of Technology, Subsistence Economy and Trade at Tatlmain Lake, Central Yukon

Degree: Master of Arts

Year this Degree Granted: 2003

Permission is hereby granted to the University of Alberta Library to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific purposes only.

The author reserves all other publication and other rights in association with the copyright in the thesis, and except as herein before provided, neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in an material form whatever without the author's prior written permission.

Chris T

11 Hayes Crest
Whitehorse, Yukon
Canada Y1A 5R2

Date: Dec 4 / 02

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled ***Ta'Tla Mun*: An Archaeological Examination of Technology, Subsistence Economy and Trade at Tatlmain Lake, Central Yukon** submitted by **Christian Daniel Thomas** in partial fulfillment of the requirements for the degree of **Master of Arts**.

Dr. Raymond J. Le Blanc

Pamela R Willoughby

Dr. Pamela R. Willoughby

Dr. Gerhard J. Ens

Date: 4 December 2002

Abstract

This thesis provides an examination of cultural materials recovered through excavations conducted in 1990, 1991 (Gotthardt 1992), and 2000, at the archaeological site KdVa-8 at Tatlmain Lake, central Yukon Territory. Interpretations focus on two thematic objectives: the first research objective is to provide a descriptive analysis of archaeological materials and compare them with interpretational models currently being used in the western subarctic. The second is to use an ethnographic analogy, derived principally from the works of Catherine McClellan (1975) and Dominique Legros (1981), to guide the interpretation of site function through time. The results of this study suggest that KdVa-8 was occupied from 3600 B.P., to the historic era, spanning both the Taye Lake and Aishihik phases of the late-Holocene. General analogies with ethnographically documented Northern Tutchone Athapaskan subsistence economies were observed during both occupations of the site.

Acknowledgements

Many people have contributed to the success of this project both in the field and in the lab. I would like to start by thanking the 2000 field crew consisting of Janelle Hager, Candice Menzie, Wade Gagnon and Fabian McGinty for their persistent efforts through good weather and bad. Thanks also go to Valerie Sylas, the project's cook. Special acknowledgement goes to Pat Van Bibber Sr. for his insight, enthusiasm and generosity in sharing knowledge and experiences. I am very grateful for the efforts of Barbara Coppard, for volunteering much of her time in the lab, and Shirley Harpham (Archaeology Technologist at the Department of Anthropology), for assisting in the identification of faunal remains.

I would like to especially thank Ruth Gotthardt and Greg Hare for their logistical and moral support during the last five years. I am in debt to Darren Isaac for promoting the Tatlmain Lake archaeology project within the Selkirk First Nation as well as insuring that all of our camp needs were attended to. The Van Bibber family has always supported me and I must thank them for introducing the many people that have helped me along the way. Twenty years ago the Granger family first brought me into the remote regions of the central Yukon and have provided for me a wealth of invaluable experiences that I will never forget and will forever draw upon. The deepest gratitude is extended to my mother and father for always encouraging and supporting my endeavours.

I am grateful to the staff at the Department of Anthropology for all of their assistance. For scholarly (and sometimes not so scholarly) counsel during my time as a graduate student I would like to thank TJ Hammer, Brandi Pringle, Robin Woywitka, Grant Zazula, Mark Ebert, Lisa Wozniak and Ty Heffner. I am eternally thankful to Barbara Coppard for her patience and understanding while I completed this work. Last but not least, special regards go out to my supervisor, Dr. Raymond J. Le Blanc, for his guidance, ideas and editorial assistance.

This thesis was made possible by the support (both financial and in-kind) of the following sponsors: Selkirk First Nation, Yukon Heritage Branch, Northern Tutchone Council, Northern Research Institute, Canadian Circumpolar Institute, and the Faculty of Graduate Studies and Research at the University of Alberta.

Table of Contents

Chapter One: Introduction 1
  Introduction 1
  Tatlmain Lake 2
  Objectives 3
  Thesis Organization 4
Chapter Two: Ethnographic Context 6
  The Selkirk First Nation 6
  Northern Tutchone Society 8
  The Seasonal Round 10
  Tatlmain, and its Importance in the Northern Tutchone World 12
  Discussion 16
Chapter Three: Environmental Setting and Paleoenvironmental History 18
  Physiography 18
  Environment and Climate 19
  Local Fauna 20
  Paleoenvironmental History 20
    Early Holocene: 10,000 to 6,000 years ago 21
    Mid- to Late Holocene: 6,000 to 2,000 years ago 22
    Late Holocene: 2,000 years ago to Present 23
  Paleofauna 23
Chapter Four: Archaeological Background 25
  The Earliest Traditions and Complexes 25
    Northern Cordilleran Tradition 25
    Early Microblade Complexes of Central and Northern Alaska 26
  Later Traditions and Complexes 27
    Northwest Microblade Tradition 27
    The Northern Archaic Tradition 28
  The Late Prehistoric Period 29
Chapter Five: KdVa-8 31
  History of Research at KdVa-8 31
  Methods 33
  Stratigraphy 35
  Chronology 37
Chapter Six: Archaeological Collections 41
  Raw Materials 41
    Above Ash Component 41
    Below Ash Component 43
  Debitage Analysis 45
    Above Ash Component: 47
    Below Ash Component: 48
  Formed Tools 50
    Historic Component 50
    Above Ash Component 52
    Below Ash Component Collections 62
  Faunal Collections 74

Above Ash Component....................74
Below Ash Component....................76
Chapter Seven: Spatial Distribution of Archaeological Remains....................79
Distribution of Features....................79
Historic Component:....................79
Above Ash Component:....................79
Below Ash Component:....................80
Distribution of Faunal Remains....................82
Above Ash Component....................82
Below Ash Component....................83
Distribution of Artifacts....................84
Above Ash Component....................84
Below Ash Component....................85
Distribution of Formed Tools....................86
Above Ash Component....................86
Below Ash Component....................87
Discussion of Spatial Distribution Data....................88
Chapter Eight: Discussion and Interpretations....................90
The Place of KdVa-8 in the Prehistory of the Interior Northwest....................90
Aishihik Phase....................90
Taye Lake Phase: Northern Archaic or Northwest Microblade Tradition?....................93
Land Use....................97
Settlement Patterns....................97
Archaeological Subsistence Economy....................98
Land Use Through Time....................99
Summary....................103
References....................104
Appendix 1: Debitage....................114
Appendix 2: Radiocarbon Dates....................117
Appendix 3: Obsidian Source Data....................121

List of Tables

Table 5.1: Radiometric dates from KdVa-8 39
Table 6.1: Frequency of raw materials in Above Ash Component 42
Table 6.2: Frequency of raw materials in Below Ash Component 44
Table 6.3: Revaltive abundance of debitage types in Above Ash Component 48
Table 6.4: Relative abundance of debitage types in Below Ash Component 49
Table 6.5: Total frequency of faunal remains in Above Ash Component 75
Table 6.6: NISP of species in Above Ash Component 75
Table 6.7: Total frequency of faunal remains in Below Ash Component 77
Table 6.8: NISP of species in Below Ash Component 77
Table 8.1: Comparison of relative frequency of species by component 101

List of Figures

Figure 2.1: Yukon Territory.....7
Figure 2.2: Tatlmain Lake area.....13
Figure 5.1: Archaeological sites around Tatlmain Lake.....32
Figure 5.2: KdVa-8 site map showing excavations from 1991 and 2000.....34
Figure 5.3: Stratgrphic profile at KdVa-8.....36
Figure 5.4: Generalized stratigraphy for KdVa-8.....37
Figure 5.5: Aerial view of Tatlmain Lake.....38
Figure 7.1: Distribution of features in Above Ash Component.....82
Figure 7.2: Distribution of features in Below Ash Component.....82
Figure 7.3: Distribution of faunal remains in Above Ash Component.....83
Figure 7.4: Distribution of faunal material in Below Ash Component.....84
Figure 7.5: Distribution of artifacts in Above Ash Component.....85
Figure 7.6: Distribution of artifacts in Below Ash Component.....86
Figure 7.7: Distribution of formed tools in Above Ash Component.....87
Figure 7.8: Distribution of formed tools in Below Ash Component.....88

List of Plates

Plate 1.1: Field crew of 1991 excavations....4
Plate 2.1: The narrows at Tatlmain lake....13
Plate 5.1: Students excavating at KdVa-8....34
Plate 5.2: Pat Van Bibber and student excavating....34
Plate 5.3: Wall profile at KdVa-8....36
Plate 6.1: Historic artifacts....53
Plate 6.3: Late Prehistoric Period point bases....58
Plate 6.4: Copper projectile point....59
Plate 6.5: End scrapers....59
Plate 6.6: Stone wedges....60
Plate 6.7: Cobble spall and Tabular scrapers....60
Plate 6.8: Cobble chopper....61
Plate 6.9: Edge ground artifact....61
Plate 6.10: Copper blanks....62
Plate 6.11: Lanceolate projectile points....69
Plate 6.12: End scrapers....70
Plate 6.13: Side and end scrapers....70
Plate 6.14: End of blade scrapers....71
Plate 6.15: Side and end scrapers....71
Plate 6.16: Double bitted end scraper....72
Plate 6.17: Spokeshaves....72
Plate 6.18: Beaked uniface....73
Plate 6.19: Cobble spall scraper....73
Plate 6.20: Blade....74
Plate 7.1: Hearth feature in Above Ash Component....80

Chapter One: Introduction

Introduction

Archaeological research in the Yukon and Alaska is continually incorporating new methodological and theoretical techniques to the study of the ancient past, yet lithic technology and the production of culture-historical sequences continues to be the principal objective of most research initiatives. Ives (1990: 4) notes that culture-historical studies tend to create prehistories that have been "built from the ground up." The poor preservation of many boreal forest archaeological sites in many ways limits the archaeologist to inquiries of this nature. The origins/evolution of the modern Athapaskan people have similarly been studied using the culture-historical mode of thought. Morlan suggested that this is accomplished by either "…trac(ing) the rubric of 'Athapaskan Prehistory' through its development from some older tradition" (1973: 504) or by "…focus(ing) on a particular group of Athapaskans and attempt(ing) to trace their origins back as far as possible" (1973: 508). Morlan (ibid) suggests that the latter mode is more appropriate. Thus, in the study of archaeological remains from KdVa-8, at Tatlmain Lake, central Yukon, I will attempt to interpret prehistory using an ethnographic analogy based on studies of the Northern Tutchone, and extend those interpretations backward in time.

The consequences of European contact, the fur trade and subsequent colonization of the Yukon by the Canadian government has altered Tutchone culture and economy. This makes the application of analogies, such as those based on relatively modern ethnographic information collected during the 1950s to1970s, to archaeological remains debatable. However, it has been agued that the use of ethnographic analogy is an appropriate methodological tool when the archaeological remains being studied are historically related to the culture from which the analogy is derived (Clark 1951: 55; Lucas 2001: 188-189); analogies become increasingly legitimate when the inferred ecological setting of the archaeological remains is similar to that of the ethnographic case (Clark 1953: 355). Both conditions apply to the present study. The history of contact in the interior Yukon is a particularly important consideration because there was only indirect European influence in the region after the Russians started granting trade concessions on the coast of Alaska in the late 1700s. It was not until the sea otter trade declined in the 1820s (Schwatka 1988: 359) that European enterprises made active attempts to access the interior. Thus, the cultural memory of modern First Nations people contain highly accurate details about life before European contact making ethnographic analogy a useful tool for understanding archaeological remains in the Yukon.

Tatlmain Lake

Tatlmain Lake is a prominent landmark in the history and traditions of the Selkirk First Nation people and is one of the most productive of the fish lakes in the region (Gotthardt 1987, 1992). In pre-contact times the lake was an invaluable resource said to be instrumental in affording its inhabitants the ability to sustain a profitable trading relationship with neighbouring groups (Legros 1985: 40-41; Gotthardt 1987: 30), the most important of which were the powerful coastal Tlingit peoples. Highlighting the importance of the indigenous trade networks, Fort Selkirk was destroyed by a Chilkat war party during the summer of 1852 in defence of the Tlingit's lucrative interior trade assets (Campbell, in: Johnson and Legros 2000). Northern Tutchone people first came into direct contact with Euro-Canadian explorers when Robert Campbell (Clerk) and James G.

Stewart (Assistant Clerk) established the Hudson's Bay Company trading post, Fort Selkirk, at the confluence of the Yukon and Pelly Rivers in the spring of 1848. The substantial indigenous population in and around Tatlmain Lake provided much of the trade and winter food supply for the fort (Johnson and Legros 2000). During the 1800s the lake was the location of a Tutchone village, and later a mixed Euro-Canadian and Tutchone commercial fishery, which was destroyed by forest fire in 1919 (Gotthardt 1987; 1992). The lake is presently the location of a modern Northern Tutchone Council healing facility from which the archaeological fieldwork was conducted.

KdVa-8 was discovered in 1990 at the historic Tutchone fishing village during a heritage survey of Tatlmain Lake initiated by the Selkirk First Nation (SFN) and Yukon Heritage Branch. In 1991, a test excavation was conducted at the old village site (KdVa-8), in which copious amounts of cultural materials were obtained (Gotthardt 1992). At present, KdVa-8 is one of the largest archaeological sites discovered in the SFN traditional territory. Therefore, when looking for a thesis project I was encouraged to continue investigations at the site. In this thesis I hope to contribute a perspective to a number of questions prevalent in today's discourse on Yukon prehistory.

Objectives

The first research objective of this thesis, then, is to provide a descriptive analysis of the archaeological assemblage from KdVa-8 so that it may be compared with the various mid- to late-Holocene technocomplexes proposed in the current archaeological literature, and if possible, to contribute to the local culture-historical sequence of the Tatlmain region. The second objective is to apply First Nation Traditional Knowledge (TK) (As proposed by Greer 1997) to the interpretation of the archaeological assemblage recovered from KdVa-8. This will be accomplished by invoking the premise, argued by

Ives (1990), that Athapaskan social organization dictates group-forming principles and that these principles may leave an empirical signature in the archaeological record. In investigating this avenue of thought, I will use a Tutchone socio-economic model, as presented by Legros (1981), to contextualize historic land use at Tatlmain Lake and assess the degree to which the material attributes of this model can be seen in the archaeological remains.

Plate 1.1: Field crew of 1991 excavations

Thesis Organization

This thesis begins with an overview of the ethnographic context for the archaeological study (Chapter Two). The overview discusses subsistence practices of the Northern Tutchone people with an emphasis on the use of fishing lakes, and the economic control of focal resources. Chapter Three provides a discussion of the past and present natural environment of the study area. In Chapter Four I summarize the culture-historic sequence for the Yukon, outlining past research and interpretational differences between various schools of thought. In the next three chapters I present the results of three years of archaeological research at KdVa-8. Chapter Five summarizes the history of research at the site outlining the excavation methods, stratigraphy, and chronometric data. Results of the descriptive analysis of artifacts and faunal material are presented in Chapter Six. Chapter Seven outlines the spatial distribution of archaeological features and collections within KdVa-8. Finally, Chapter Eight provides an interpretation and discussion of the results in the context of the project's research objectives.

Chapter Two: Ethnographic Context

The Selkirk First Nation

Members of the Selkirk First Nation are a sub-group of the Northern Tutchone people and presently inhabit the study region (Figure 2.1). The spatial limits of Northern Tutchone territory encompass the Pelly, Macmillan, Stewart and Ross river drainages as well as the Yukon River from its confluence with the Teslin River to its confluence with the White River. The Northern Tutchone are bordered by Southern Tutchone and Inland Tlingit to the south, Kaska and Mountain people to the east and northeast, Gwitchin to the north, Han to the west and Upper Tanana to the southwest (McClellan 1975: see Map 1). The historic Selkirk Band was comprised of multiple Northern Tutchone groups that lived in the area of Fort Selkirk and used it as their primary trading centre in the late 1800s and early 1900s (Gotthardt 1987: 25). The outbreak of severe plagues during the late 1800s (likely scarlet fever, small pox and dysentery though influenza, measles, chicken pox, diphtheria and tuberculosis were mentioned in the 1900s) significantly reduced indigenous populations in the central Yukon and was a factor leading to the amalgamation of several groups (Legros 1981: 209), into what is now the Selkirk First Nation. The modern Selkirk First Nation is comprised mainly of people affiliated with the former Selkirk, Tatlmain, and Lower Macmillan groups, who settled in and around Fort Selkirk during the early 1900s (Gotthardt 1987). The construction of the North Klondike Highway in the 1940s and 50s moved the regional economic base to the ferry station at Pelly Crossing and Fort Selkirk was eventually abandoned (Legros 1999: 190). The community of Pelly Crossing is the present home of the Selkirk First Nation, though they continue to maintain close ties with other Northern Tutchone peoples in the Little Salmon/Carmacks and Na'cho N'y'ak Dun first nations.

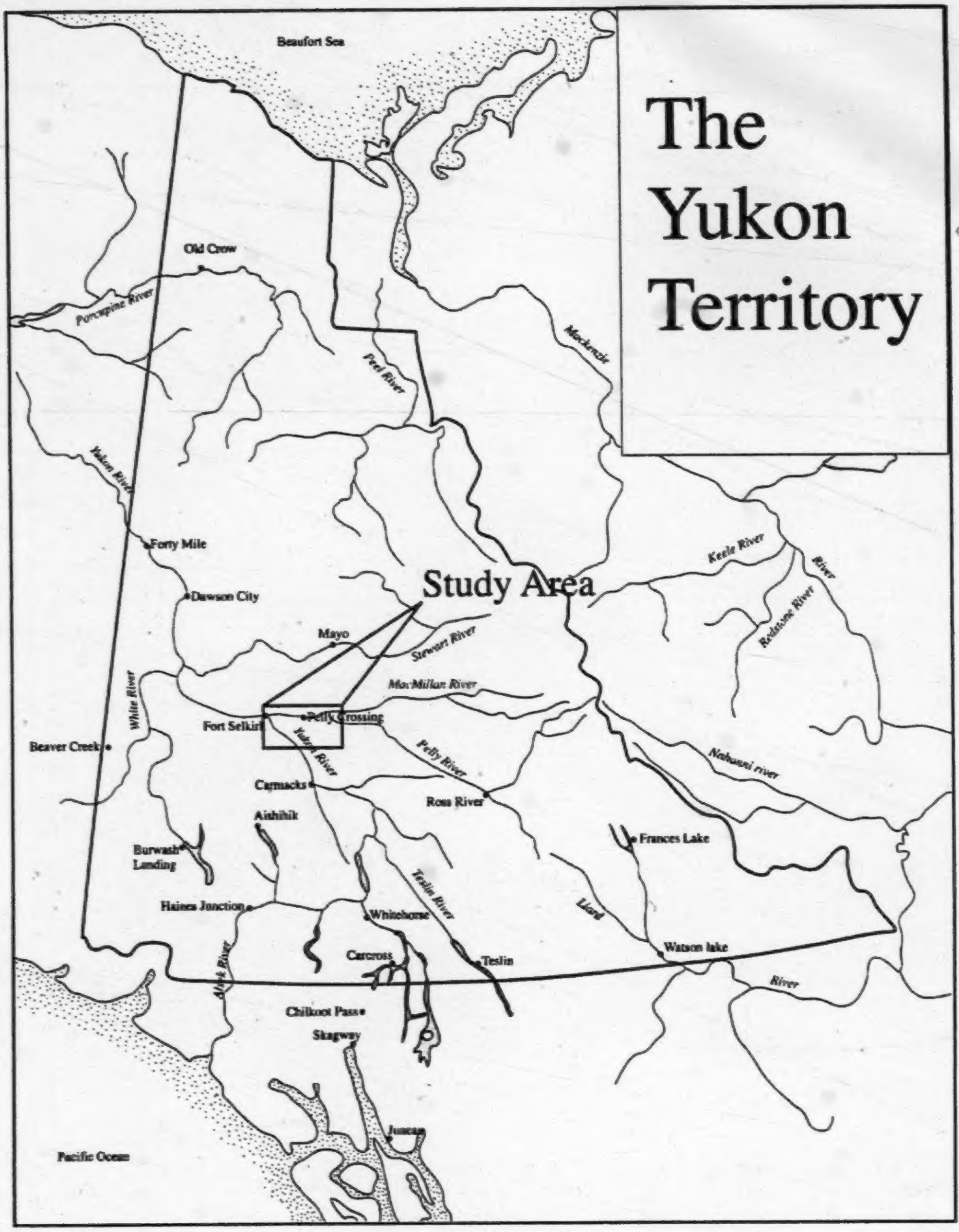

The Yukon Territory
Beaufort Sea
Old Crow
Porcupine River
Peel River
Mackenzie
Yukon River
Forty Mile
Dawson City
Study Area
Mayo
Stewart River
MacMillan River
Keele River
River
Redstone River
White River
Fort Selkirk
Pelly Crossing
Yukon River
Pelly River
Beaver Creek
Nahanni river
Carmacks
Ross River
Aishihik
Frances Lake
Burwash Landing
Teslin River
Liard
Haines Junction
Whitehorse
Watson lake
Alsek River
Carcross
Teslin
River
Chilkoot Pass
Skagway
Juneau
Pacific Ocean

Figure 2.1: Yukon Territory

Northern Tutchone Society

Northern Tutchone society organized itself on a number of levels. It is difficult to ascertain what the largest indigenous political unit might have been, though it can be said that Northern Tutchone recognized a close political/cultural affinity with the Southern Tutchone (McClellan: 14-16), excluding those of the latter group who were more-or-less "Tlingitized" (Legros 1999: 185). The Northern Tutchone seemed to be distinct from neighbouring groups inasmuch as their languages were mutually unintelligible (McClellan 1975: 20-21; Osgood 1936), suggesting that this may have been the case for a significant length of time. However, the regional group was probably the most important political unit in the day-to-day lives of most Tutchone (McClellan 1975: 415-416). The regional group was made up of about five to ten nuclear families (or local groups) sharing close kinship ties and occupying relatively distinct geographic areas. The regional group would share a common chief (*dän co*) and, though they would not live together for the entire year, would remain in relatively close contact with one another, meeting regularly for social and economic functions.

Within greater Tutchone society, people divided themselves into moieties (or clans) called *Tséhk'i* or *Handyat* for the Crow moiety and *Egay* or *Egunde* for the Wolf moiety (McClellan 1975: 439, though the spellings presently used come from, McClellan 1987). Moieties defined how people married, where they could hunt and fish, who they could trade with, and who they could go to for help in times of need. It was absolutely forbidden to marry someone of the same moiety; therefore, a wolf could only marry a crow and vice versa. Descent in Northern Tutchone society is matrilineal so one would inherit their clan affiliation from the mother. Within the nuclear family, the children would inherit the mother's moiety affiliation and therefore would be related to family in her moiety. The father's side (his mother, brothers and sisters) belonged to a different moiety and were therefore not as clearly related in the Judeo-Christian sense of the word (McClellan ibid.). In the Tutchone system, social obligations are divided along clan lines. Females pass on clan property and land tenure. Rights-of-passage for both male and female children were arranged through maternal uncles (Legros 1985: 49; McClellan 1975: 413-14). Political issues were directed via an older male who would manipulate power within his clan primarily through his siblings, his daughter's husband, and through his sister(s)' male offspring (Legros 1985: 54-55); males were obliged by kinship rules to assist their maternal uncle and their wife's father. Though the male power figure did not make all of the group's decisions, members of society would often address their concerns using these symbolic relationships.

Kinship terminology belies further complexity within the clan system. Northern Tutchone kinship terminology has been variously described as either following the Crow type (McClellan 1975: 405), the Iroquois type (Legros 1985: 49) or the Dravidian type (Ives 1990: 241); all three nomenclatures describe the presence of a duality in the terminological distinctions of parallel and cross relatives. Ives (ibid: 286-288) proposes that the Dravidian type nomenclature best explains the entire range of kinship practices within Northern Athapaskan society at large, and by extension is the basis for the Tutchone system. Though I do not wish to delve too deep into the intricacies of Athapaskan kinship practices, as more than ample discussions of this topic can be found elsewhere (Ives 1990; Legros 1981; McClellan 1975), I should provide a brief explanation of Dravidian terminology as it is of some consequence to formation of social hierarchies (explained shortly) in Tutchone society.

This terminology divides all members of the social universe into either consanguinal (parallel) and affinal (cross) relationships of differing closeness to ego (Ives 1990: 76-78). These relationships apply to the nuclear family, extended family and un-related members of a social group; relations are traced one generation above and below ego's own (ibid.). As well, the Dravidian system allows for positive proscription of affinal relationships (i.e. some affines are more desirable than others), such that a flexible variety of social recourse is available to any given person so that they may regulate their economic stability within the scarce boreal ecosystem (Ives 1990: 200-201).

The Seasonal Round

Legros (1981: synthesized in English by Gotthardt 1987) has compiled information on the Northern Tutchone seasonal round that corresponds well with patterns documented for the Southern Tutchone people (McClellan 1975). The annual cycle consisted of a wide variety of hunting and trapping activities that required rigorous seasonal mobility. In the winter (early November to mid-April), most Northern Tutchone would disperse throughout their territory in highly mobile groups to trap fur-bearing animals as well as to hunt for moose and caribou that dispersed across the forested landscape in small populations (Gotthardt 1987: 35). Some larger kin groups would settle at large lakes to fish and trap. During the winter (and early spring), beaver lodges were more accessible to hunters as ponds, streams and lakes were frozen (Legros 1981: 545-546).

In the early spring (Gotthardt 1987: 36) people dispersed into smaller family groups and continued hunting and trapping in valley bottoms. Others would move to northern pike spawning grounds at various lakes and streams, caching dry fish for the dog teams. Caribou would start migrating to their summer range during the months of April and May, prompting hunters to move to interception points between the lowlands and the mountains (ibid: 37). As was also the case during the fall, migrating waterfowl were readily exploited in all lakes, rivers and streams. Beginning in July and August, large salmon camps were established on the Yukon River, the largest Selkirk camp was located in the vicinity of Minto Landing (ibid: 37). Harvesting the salmon run was a summer activity in which people would either net fish in larger rivers or spear and trap them in smaller streams; the majority of salmon was dried for winter caches. During the late summer women and children would collect and dry ripening berries. Ground squirrels were also a regular summer staple, and the furs were often traded to the Tlingit or sewn into large robes (McClellan 1975: 158).

During the mid-to-late summer, Southern Tutchone and Tlingit traders would arrive at trade rendezvous during which time the bulk of the yearly exchange in exotic goods would take place (Gotthardt 1987: 37). Tutchone trade goods were tanned moose and caribou hides, goat hides (goat hair being used as a fibre for blankets), trade furs, animal sinew, large game meat, and a variety of fungi, which were exchanged for eulachon grease, shell ornaments, sea weed, exotic raw materials, various types of clothing or blankets, copper goods, Sitka spruce root hats and baskets; European goods were also traded during the fur trade era (Legros 1985: 46-47). Autumn was an important season for large game hunting. Although people continually hunted large game throughout the year, animals having the benefit of plentiful summer forage were healthy and their hides in prime condition for making clothes (McClellan 1975: 110). Caribou hunting grounds lay in the mountains to the north and west. Hunting would generally last as long as it was necessary to create ample stores of meat and hides.

Tatlmain, and its Importance in the Northern Tutchone World

Traditional Knowledge (TK) can provide analogies that are useful for interpretive purposes. Specifically, identifying seasonal economic activities in an archaeological site can be troublesome due to poor preservation; hence an overview of ethno-historically documented Tutchone lake use is provided here so that it may be applied as an analogy for interpreting KdVa-8. The Tutchone name of the lake, Tatlmain (or as it is now transcribed *Ta'Tla Mun*. Current transcription from Chapter 10, Schedule B, in Selkirk First Nation Final Agreement, 1998), describes the bay at the west end where people fished, emphasizing the local economic importance of the lake (Gotthardt 1992: 2). In the fall, camps would be set up along the bank of Mica Creek where people would construct traps to harvest spawning whitefish. In the winter nets made of root fibre or sinew would be attached to long poles and placed under the frozen lake surface to intercept schooling fish (ibid: 8). Though Tatlmain Lake is well known for its fish resources, the trapping and hunting of smaller game was also an important aspect of the economy. Beaver are locally abundant (Van Bibber personal communication, 2000) and were probably hunted using snares under the ice or were speared within their lodges. Trapping at the lake was quite profitable, though it was bound to have been more intensive during the Fur Trade when the coastal Tlingit, and later the Hudson's Bay Company, created an increased demand for furs. During the winter of 1850 and 1851 Robert Campbell recorded the acquisition of over 600 beaver pelts from the lakes around Fort Selkirk, Tatlmain Lake being mentioned quite often in the company journal as the source of much of the post's incoming traffic in fish, game and trade furs (Campbell, in: Johnson and Legros 2000).

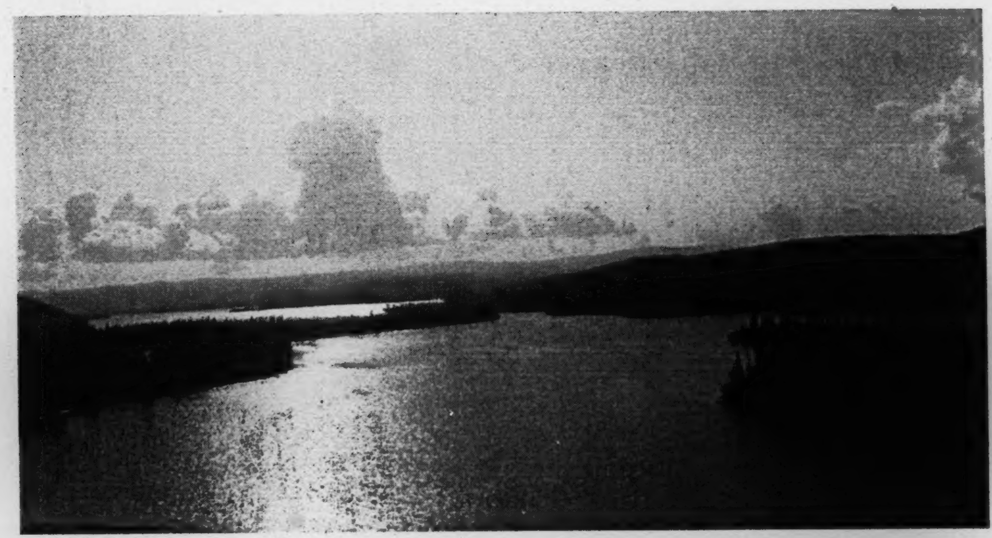


Plate 2.1: The narrows at Tatlmain Lake

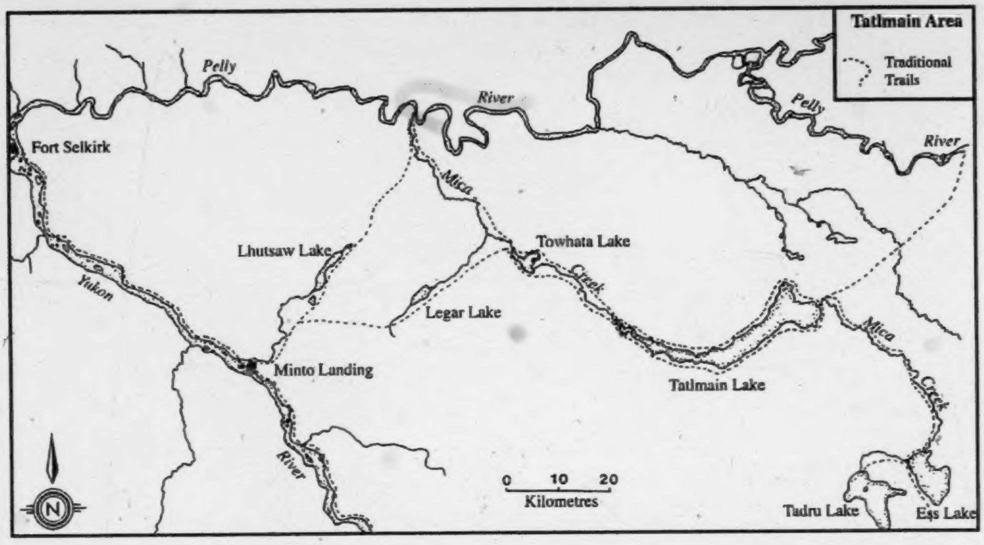

Tatlmain Area
Traditional Trails
Pelly
River
Pelly
River
Fort Selkirk
Mica
Lhutsaw Lake
Towhata Lake
Creek
Yukon
Legar Lake
Minto Landing
Mica
Tatlmain Lake
Creek
River
0 10 20
Kilometres
N
Tadru Lake
Ess Lake

Figure 2.2: Tatlmain Lake Area (Modified from Gotthardt, 1992).

Legros (1981; 1985) has presented a socio-economic model outlining the significance of focal resources in the Tutchone territory. The seasonal movements of Tutchone people were partly motivated by the pursuit of seasonally abundant game resources, which allowed for the efficient harvesting of substantial amounts of food on a predictable basis. However, seasonal migrations, though being a logical method of extracting resources, were compelled by a need to maintain a Tutchone social hierarchy. Legros (1981: 859-60; 1985: 50) has observed that the Tutchone were not a strictly egalitarian hunter-gatherer society. Due to the particularities of Athapaskan (Dravidian) kinship system and possibly due to the effect of trade relations with coastal Tlingit societies, a three-tiered social-hierarchy seems to have developed in pre-contact times. The three social rankings were rich people, poor people and slaves. Most people in the Tutchone social universe fit into one of these categories (Legros 1985).

The dynamics of the rich family seemed to be particularly important in creating a societal need to maintain seasonal camps at key resource areas. The qualification of being a rich person lay in one's ability as a trader. A person was rich if they could (1) efficiently organize the seasonal modes of production; (2) manipulate kinship ties to create a surplus of material wealth (to be used for trade purposes); and (3) ensure that they served as middlemen in trade with outside groups (Legros 1981: 1019-20). Legros (1985: 51) emphasizes this control by stating:

> Rich families' wealth was tangible. They had the control of all the ten or eleven good lake narrows, the most productive salmon extraction sites, the pyrite and native copper quarries, as well as the best beaver hunting areas, the few thickets of splittable birch, the few lakes harbouring swans, and the mountain peaks inhabited by Dall sheep. They prevented autonomous poor Tutchone from fishing, hunting, or working at such locations without their express permission. Whenever necessary, they resorted to organized violence to maintain their claims or privileges.

The control held by a rich family was not absolute as not all resources were predictable and therefore could not be controlled. It would seem that winter proved to be critical to people, as it was during this time that families were most susceptible to hardship. In times of hardship, ordinarily autonomous families would have to turn to rich families for aid at which point the former would be subject to the control of the latter. In winter, food resources were most abundant in large lake basins, and productive lakes, like Tatlmain, seemed to have been well guarded assets (Legros 1985).

Dän nozhi' is the Tutchone word for a rich or powerful person who, at the head of a clan or moiety, would use a network of kinship ties to gather a population around him which would remain together for a large part of the year; with this population he would effectively control prime resource areas (these were principally salmon camps and winter camps at fish lakes) (Legros 1981: 1019-20; McClellan 1975: 494). The *Dän nozhi'* seemed to be thought of as a chief-like figure and was probably an influential male who used his position as gatekeeper within his moiety to influence group actions. The status associated with being a prosperous trader was the driving force that would encourage the *Dän nozhi'* to maintain large groups. The physical threat created by the large group ensured that other Tutchone people would have to use the *Dän nozhi'* as a trade middleman (Legros 1985). There was more than one such trade franchise operating in the Northern Tutchone area at any given time, but it seems that the Selkirk group, headed by a man named *Thlinget Thling* (Campbell, in: Johnson and Legros 2000), was the most powerful in the region at the time of initial contact.

It is hardly possible to say at what point in history a regulated trading system developed, but Catherine McClellan (1975: 501) stated (for the southern Tutchone) that:

> The external relations of the people of the southern Yukon were largely structured by their trading activities; indeed trade is the focal point of much of the "history" that we have for this area during the nineteenth century. The sharp environmental contrasts between coast and interior had undoubtedly fostered an exchange of aboriginal products from as far back in time as native memory and legends will take us

This quotation indicates that she felt that this socio-economic system was rooted in a tradition that had a significant time depth. Legros (1981: 1018; 1985: 62) proposes that a trade driven social hierarchy existed in the Northern Tutchone area during the 1840 to 1895 period. This falls within the fur trade era, but Legros points out that elements of this type of this social stratification are depicted in Northern Tutchone mythology (1999: 186) as well as in the indigenous terminology (not a trade pidgin, or vocabulary borrowed from the Tlingit), which may suggest that this system has deeper roots than the European fur trade.

Discussion

The archaeological record has the potential to comment on the time depth of Athapaskan subsistence and trade practices, although it is a record that produces different kinds of information than does the oral narrative. In this chapter, I have attempted to summarize Tutchone life and have attempted to provide an ethnographic analogy for the interpretation of archaeological remains at Tatlmain Lake. It is certainly not possible to see evidence of trade franchises or social hierarchies in the subarctic archaeological record, but the material attributes of this system may be present in the form of intensive occupations of the site, exotic trade goods and seasonally abundant winter resources (fish and game). The archaeological record for the northwest coast of North America has evidence for the rise of stratified societies around 4000 years ago in what has been termed the Middle Pacific Period (Ames and Maschner 1999). The rise of social hierarchies is indicated by the presence of human burials that contain disproportionate amounts of grave goods. Ames (1998) feels that a number of hallmarks of northwest coast society appear during the Middle Pacific Period, such as the formation of an elite class, an increase in inter-group warfare and, most significant for the present study, the exchange of goods between the coast and the interior. Thus, the necessary external conditions for the historically observed Tutchone socio-economic system were likely in place four millennia ago making the ethnographic framework presented in this chapter a plausible archetype for the interpretation of archaeological remains discussed in this thesis. The application of these ideas to the archaeological remains at KdVa-8 will be discussed in Chapter 8.

Chapter Three: Environmental Setting and Paleoenvironmental History

Physiography

Tatlmain Lake is about 23 km long and occupies a narrow valley bounded by rolling hills rising about 500 m above the valley floor. There are two main inlets to the lake: Tatlmain Creek, which flows into the mid-point of the lake from the south, and Mica Creek, which flows into the east end of the lake from Tadru and Ess lakes. The only outlet for the lake is Mica Creek at the west end. Local First Nation people tend to see the lake as having two parts: the "big lake" and the "little lake" (Gotthardt 1992: 4). The latter constitutes the extreme west end of the lake, which is shallow, filled with numerous islands and narrows. The "big lake" is the main body of the water, which is wider, deeper and infamously rough due to strong winds that are channelled down the valley. To avoid waking the wind, which can make boat travel nearly impossible, local legends encourage travellers to be quiet when approaching the narrows separating the two parts of the lake (Van Bibber, personal communication 2000).

Within the greater region, the Tatlmain basin sits on the Yukon River Plateau (Oswald and Senyk 1977), which is transected by various river valleys draining from the St. Elias (Coast) and Cassiar-Pelly mountains to the south and west, and the Selwyn-Ogilvie Mountains to the north and east. All of the local water sheds flow into the Pacific drainage system. The only mountain range close to the study region is the Glenlyon Range to the east. Local topography is composed of several groups of rolling hills which extend east-west through the region and are of little climatic or environmental consequence (Oswald and Senyk 1977; Wahl et al. 1987). Major rivers draining through the region are the Nordenskiold, Pelly, Stewart, White and Macmillan rivers, which in turn drain into the Yukon River.

Environment and Climate

Tatlmain Lake is located within the Pelly River Ecoregion as defined by Oswald and Senyk (Oswald and Senyk 1977). The vegetation consists mainly of spruce dominated boreal forest, interspersed with stands of poplar, except at higher elevations where there is transitional sub-alpine and alpine-dominated vegetation. White spruce forests occur in well-drained soils, whereas black spruce forests are found in poorly drained areas. Paper birch stands are present sporadically throughout the region, found in cooler sites such as north-facing slopes of large hills and mountains. Forest fires are endemic in the region and seem to run on a one-hundred year cycle, leaving the landscape in various stages of forest succession where poplar will be the primary re-colonizer for a number of decades subsequent to a major fire (Oswald and Senyk 1977).

Regional climate is continental because of the rain shadow effect created by the St. Elias Mountains, which removes moisture from the Pacific air mass flowing in from the Gulf of Alaska. Seasonal climate is dominated by the Aleutian weather system that is stronger in the summer causing warm air to move in from the coast, but weaker in the winter allowing cold dry arctic air to move from northwest Alaska. This said, the climate is generally semi-arid, experiencing roughly 600 to 700 mm of precipitation per year. The region experiences extreme seasonal temperature fluctuations of 40° to 60° C between summer and winter months (Wahl et al. 1987).

Local Fauna

Large mammal species abundant in the region (Youngman 1975) incluse moose (*Alces alces*), bear (*Ursus americanus* and *Ursus arctos*), wolf (*Canis lupis*), coyote (*Canis latrans*). Caribou (*Rangifer tarandus*) used to be seasonally abundant in the region, summering in the mountains to the north and east then dispersing into the forest for the winter. However, populations have been all but eradicated due to over hunting during the Klondike gold rush and the construction of the Alaska and Klondike highways (O'Donoghue 1996). Elk or wapiti (*Cervus elaphus*) are also present to the south of the study region but are not native to the area (Youngman 1975: 159). The lake is host to a plethora of fur bearing animals comprised mainly of beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*) and snowshoe hare (*Lepus americanus*). Marten (*Martes Americana*), fisher (*Martes pennanti*), mink (*Mustela vison*), lynx (*Felis canadensis*), red fox (*Vulpes vulpes*) and wolverine (*Gulo gulo*) are also found in the area (Youngman 1975). Waterfowl are common at the lake during the spring migration including many species of duck (*Anas platyrkynchos*), swan (*Cygnus columbianus*) and goose (*Branta canadensis* and *Chen caerulescens*). Spruce and ruffed grouse are common in the valley bottom and ptarmigan are usually found in the higher elevations of the valley (Gotthardt 1992). One of the lake's main animal resources is the fish population composed mainly of whitefish (*Coregonus clupeaformis*), northern pike (*Esox lucius*), white sucker (Catostomidae) and trout (*Salvelinus namaycush*) (Lindsay et al. 1981).

Paleoenvironmental History

The Tatlmain region was last glaciated about 13000 years ago during the McConnell Glaciation (Ward 1993). At that time about half of what is now the Northern Tutchone traditional territory was covered by the westward flowing Cordilleran ice mass.

The Tatlmain Basin was completely inundated with ice during the McConnell and many of its surficial landforms were modified during that event (Ward 1993: map 1786A). In synthesizing paleoecological data, I will exclude the time periods representing the Beringian and late glacial environment as the archaeological remains from KdVa-8 indicate a record of occupation beginning in the mid-Holocene; therefore, I will focus on paleoenvironmental data relating to the development of Holocene environments. There have been no comprehensive paleoenvironmental studies for the central Yukon south of the Selwyn-Ogilvie Mountains (Cwynar and Spear 1995: 33), but plant communities and climate can be extrapolated from research conducted in the southern and northern Yukon. The southern Yukon should be considered a better analogue for the climate of the study area because, though more arid, climatic conditions are more temperate, whereas climate north of the Selwyn-Ogilvie Mountains is influenced more by arctic conditions (Cwynar and Spear 1995: 30; Wahl et al. 1987).

Early Holocene: 10,000 to 6,000 years ago

Palynological evidence suggests that the southern half of the Yukon seems to have been deciduous forest with a minor component of white spruce (*Picea glauca*) by about 9,500 years ago (Cwynar and Spear 1995; Lacourse and Gajewski 2000; Ritchie and MacDonald 1986). North of the Selwyn-Ogilvie Mountains, the deciduous component would have been dominated by a shrub tundra under story similar to that seen in the region today (Cwynar and Spear 1991). South of this divide, the deciduous component of the woodland would be represented more by poplar (*Populus*) and juniper (*Juniperus*) (see pollen zone 3, in Lacourse and Gajewski 2000: 30). The early part of this time period seems to have been fairly dry but by 8000 years ago the spruce population increased dramatically indicating an increasingly warm and moist environment (Lacourse and Gajewski 2000: 34). In a recent diatom study of lake U60 (or Stinking Lake, as it's known locally), evidence indicates an increasingly fresh water character for lakes in the central Yukon during the 8,000 to 2,000 B.P., time period (Pienitz et al. 2000), which, when considered in combination with the botanical data, indicates that precipitation was greater than at present. The Pienitz et al. (2000: 683) study corroborates the idea of a cause-effect relationship between increased moisture and the fluorescence of spruce forests.

Mid- to Late Holocene: 6,000 to 2,000 years ago

Regional climate appears to have been cooling during this time period. Climatic cooling is marked by expansion of alpine glaciers and lowering tree line elevations in the mountains of the southern Yukon (Denton and Karlén 1977; Mann et al. 1998). This is also seen in lake cores which document a significant increase in the amount of green alder (*Alnus crispa*) pollen beginning around 6,500 to 5,000 B.P., (Cwynar and Spear 1995; Lacourse and Gajewski 2000). North of the Selwyn Mountains, there was a significant reduction in all spruce (*Picea*) pollen in lake cores, indicating a southward movement of the tree-line (Cwynar and Spear 1991). Cwynar and Spear have looked at variability within white and black spruce pollen assemblages and results indicate that white spruce (*Picea glauca*) populations were decreasing in abundance relative to black spruce (*Picea mariana*), suggesting that ground conditions were becoming increasingly mesic (Cwynar and Spear 1995: 35). Schweger (personal communication 2002) has suggested that mesic conditions may have been brought on by the increasing prevalence of permafrost in the ground surface in response to climatic cooling. Permafrost significantly impedes ground water drainage in the Yukon and is a significant factor in the formation of modern plant communities (Wahl et al. 1987). Pollen cores also document a rise in lodgepole pine (*Pinus contorta*) at the time, though pine was not a significant part of the plant community until the late Holocene (Cwynar and Spear 1995; MacDonald and Cwynar 1985).

Late Holocene: 2,000 years ago to Present

Though the vegetation of the region seems to have taken its present form between six and four thousand years ago (Cwynar and Spear 1995; Lacourse and Gajewski 2000), there seems to have been some notable climatic fluctuations that are documented in proxy records. The Pienitz et al. (2000) diatom study indicates that there was a significant drying period in the Yukon, which began about 2,000 years ago and continues to the present. Pollen records from the central Yukon show a dramatic increase in the pine population at this time (MacDonald and Cwynar 1985). Macdonald and Cwynar (ibid) have convincingly maintained that the sudden appearance of pine at this time is due in part to a migration lag[1], but it is worth noting that pine is a species that reproduces and spreads in reaction to forest fires (Cody 2000). The coincidence of drying conditions and the appearance of pine may be related to an increase in forest fire activity during the last two thousand years.

Paleofauna

Most animal species that are now present in the territory were also present earlier in the Holocene. Obviously species adapted positively or negatively to ecosystem changes and may well have used different regions of the Yukon accordingly. Unfortunately, the animal community ecology of the Holocene has not been well studied and most of the available data on the subject comes from archaeological site reports.

---

[1] This suggests the climate was conducive to pine trees, but this species was slower in spreading north than other plant communities.

Therefore, it is not really possible to comment on how many animals were available for human use, but it is possible to say which ones humans were using.

The archaeological literature indicates that caribou were the most important large game species utilized by past peoples in the Yukon (Yesner 1989: 100-103). It is worth mentioning that bison (*Bison*) were common in archaeological collections, and though early evidence suggested populations went extinct in response to changing ecological conditions 3000 years ago (Workman 1978: 58-59), an examination of recently dated bison remains (Gotthardt and Hare, personal communication, cf., Heffner 2002: Table 2.1) indicate that they were hunted until at least 300 years ago and relict populations may well have existed into proto-historic and historic times (Gates et al. 2001: 11).

In modern times, moose are one of the more important game animals for local First Nations, but it seems to have played a secondary role in past subsistence economies. Archaeological assemblages with evidence of large game animals are usually dominated by caribou remains, which often represent upwards of eighty percent of the faunal material from any given site (Yesner 1989). It has been suggested that past moose populations were significantly smaller than they are today and that their populations started to expand about 400 years ago with an increase in forest fire activity which in turn created more moose pasture (Yesner 1989: 98). While this is a possibility, I don't feel that there is enough non-archaeological data to support such a hypothesis. Moose are solitary animals and do not congregate in large herds, as do caribou, and therefore are relatively difficult to hunt. Caribou were much more abundant on the landscape up until recent times (Pat Van Bibber Sr., personal communication 2000), and would migrate on a predictable seasonal basis, making them a focal resource for past hunters.

Chapter Four: Archaeological Background

The culture historical sequence presently employed in the southern and central Yukon is best described in Hare (1995: Table 6). It consists of the initial post-glacial occupation of the region by peoples with a Northern Cordilleran tradition toolkit. This is followed by the appearance of microblade technologies during the Little Arm phase (no named tradition). The Annie Lake complex (Greer 1993) is a poorly understood technological construct that, appearing after Little Arm, is tentatively thought to indicate an early Northern Archaic Tradition (NAt) occupation in the southern Yukon (Hare 1995: 122). The NAt is the latest southern Yukon technological entity, consisting of the Taye Lake phase and the Late Prehistoric period.

The Earliest Traditions and Complexes

Northern Cordilleran Tradition

The Northern Cordilleran tradition (NCt) was defined by Clark (1983), in accordance with discussions by MacNeish (1964: 334) as well as Irving and Cinq-Mars (1974: 77), as a theoretical construct used to classify archaeological components in the Yukon that pre-date those included within the Northwest Microblade tradition. Though the idea has undergone considerable criticism in the past (Clark 1983; Workman 1978: 128), its use is currently supported in Yukon literature (Clark 1983; Gotthardt 1990: 267; Greer and Blanc 1983: 28-29; Hare 1995: 105; Heffner 2002: 121-122). The NCt is characterized by lithic technologies including large bifaces, large blade tools and large lanceolate projectile points with round or pointed bases. JcUr-3 has produced a late radiocarbon date for the tradition as being before 7160±70 B.P., (Beta-57944, Hare 1995); a date of 7195±100 B.P., (SI-1117, Workman 1978) from the basal level at the

Canyon site is also thought to be applicable (Clark 1983: 37). The earliest date for the tradition comes from KaVn-2, in the southwest Yukon, where a radiocarbon age of 10,670±80 B.P., (radiocarbon years) was obtained (Heffner 2002). Clark (1983: 33) has proposed that Dry Creek I component is part of the NCt based on the former's stratigraphic relation to microblade components. Dry Creek I belongs to the Nenana complex defined by Powers and Hoffecker (1989) and has some similar technological characteristics to the NCt such as blade tools, large bifaces and round base projectile points in addition to a triangular Chindadn point form. At the time Nenana complex sites were thought to predate the appearance of microblade bearing components of the later Denali complex, though recent dates from the Swan Point Site (Holmes et al. 1996) suggests the two existed concurrently. Powers and Hoffecker (1989) propose that Nenana represents occupations older than 10,500 years ago.

Early Microblade Complexes of Central and Northern Alaska

The terminology used to describe the early microblade complexes of Alaska are varied but the technology tends to be indicative a broad-based archaeological tradition persisting from the late Pleistocene to the mid-Holocene. The Denali complex (West 1967) and the American Paleo-Arctic Tradition (Anderson 1968, 1970, 1988) are constructs that describe archaeological components containing early microblade assemblages in central and north-central Alaska. The two constructs appear to be regional variants of a single archaeological tradition, as suggested by Dixon (1985: 55) and West (1981: 82); in this discussion I will use the term Denali in accordance with Clark and Gotthardt (1999: 167), who have suggested that this term better describes interior Yukon-Alaska microblade assemblages than does the American Paleo-Arctic. Technologies characterizing the Denali complex are wedge shaped microblade cores, large blocky rotated blade and microblade cores, blades, microblades, flake burins (Donnelly and Transverse), and a variety of lanceolate projectile point forms and unifacial tools. The Denali complex occupations generally date from 10,500 to 7000 (radiocarbon years) B.P., (Dixon 1985) with the exception of earlier occupations at Bluefish Caves (Cinq-Mars and Morlan 1999) and Swan Point (Holmes et al. 1996). West (1996: 550) has maintained that pre-microblade complexes such as Nenana (and possibly Chindadn) are regional or functional variants of Denali and proposes that all early occupations should be discussed under the umbrella of the Beringian or Eastern Beringian Tradition.

Later Traditions and Complexes

Northwest Microblade Tradition

MacNeish (1964) defined the Northwest Microblade tradition (NWMt) as an amalgam of archaeological occupations post-dating the Cordilleran tradition and pre-dating the Denetasiro tradition (essentially similar to Late Prehistoric period). In the southern Yukon, the NWMt was comprised of three phases representing technological transitions in what was interpreted to be an evolving (but related) tradition. The Little Arm phase represents the appearance of microblade and core technology, which is followed by the Gladstone phase and the appearance of notched projectile points, and finally by the Taye Lake phase, when the use of microlithic technology wanes and eventually disappears. MacNeish was not able to provide a firm radiocarbon chronology for this sequence but subsequent excavation and dating of Little Arm components indicate early occupations around seven to eight thousand years ago (Hare 1995: 111; Workman 1978: 403). Workman (1978: 130) has observed that MacNeish's (1964) sequence was based on precarious associations of artifacts, stratigraphy and chronometric data and thus chose not to use NWMt as an interpretational device in his synthesis. Instead, the Little Arm phase was placed in an unnamed tradition related to the Denali and all later NWMt components were interpreted (minus microblades) within the Northern Archaic Tradition.

The Northern Archaic Tradition

The Northern Archaic Tradition (NAt), formulated by Anderson (1968) based on the excavation of Bands 5, 6 and 7 (and later Band 2, Anderson 1988) at Onion Portage, describes mid- to late-Holocene archaeological assemblages that post-date the appearance of notched projectile points and lack microblades. Anderson (1968: 30) postulated that this technological change resulted from the diffusion of an archaic adaptation, originating in the woodlands of the eastern United States, and was coincident with the expansion of the boreal forest into the Yukon and Alaska. An archaic adaptation would signify a pervasive transformation of a culture's subsistence economy and in this case the concept was borrowed from the Archaic tradition of the eastern woodlands of the U.S., supposedly signifying a shift from big game hunting to broad-based (including fish, small game and plants) hunting and gathering (Anderson 1968: 30). Lithic technologies associated with the NAt are notched points, straight-based lanceolate points (oblanceolate and pentagonal forms), notched pebble net sinkers, semi-lunar bifaces and a notable increase in the use of unifacial tools such as end-scrapers and scrapers with multiple working edges (Anderson 1988: Chapter 7). Workman (1978: 414) considers the Taye Lake phase (as well as later Aishihik and Bennett phases) of the southwest Yukon to be a "geographic variant" of the NAt; southern Yukon occupations are dated from 5000 B.P., (radiocarbon years) to 1250 B.P., (stratigraphic) (Workman 1978). The validity of the NAt, as a concept, has been questioned on a number of levels. Firstly, recent discussions (Anderson 1988: 87; Clark 1992; Morrison 1987) have concluded that the ecological and economic arguments for a mid-Holocene archaic adaptation, as outlined by Willey and Phillips (1958: 107), do not apply to cultures of the interior western subarctic. Spruce forest was present in the Yukon and Alaska by as early as 9000 B.P., (see discussion in Chapter Three, p. 20). Furthermore NAt sites occur both in the boreal forest and on the tundra and a significant transformation in the subsistence economies of the interior northwest have yet to be reported (Morrison 1987). Secondly the late persistence of microblades in notched point assemblages of the late-Holocene questions the idea that older technologies were displaced. Dixon (1985: 54-57) has suggested that the absence of securely dated microblade components between 5000 and 3500 B.P., could be interpreted as a local displacement of Denali culture by NAt, followed by the re-appearance of microblades in the Late Denali; though a synthesis of sites and radiocarbon dates by Clark and Gotthardt (1999: 169-171) suggests that this hiatus is no longer reflected in the archaeological evidence.

The Late Prehistoric Period

The Late Prehistoric period is best defined from excavations at Klo-kut (MjVi-1) (Morlan 1973) and Rat Indian Creek (MjVg-1) (Le Blanc 1984) in the northern Yukon. Klo-kut phase (1200 B.P., Le Blanc 1984: 428) technology is characterized by: simple flake tools (such as retouched flakes, scrapers and pièces esquillées) derived from pebble cores, contracting stemmed points (Kavik type), an elaborate osseous tool industry, cobble spalls and tabular bifaces. Increased participation in widespread trade networks is also evidenced by the use of exotic raw materials, such as Tertiary Hills Tufacious Clinker (Cinq-Mars 1973) and native copper (Le Blanc ibid.). In the central and southern Yukon the Late Prehistoric period is arbitrarily defined as the time period after the eruption of Mount Bona-Churchill (Workman 1978) and the deposition of the White

River Tephra at about 1250 B.P., (Clague et al. 1995). The recent discovery of well preserved organic artefacts in southern Yukon alpine ice patches indicates that bow and arrow technology appeared in the region at this time (Hare et al. 2001).

It should be noted that there has been discussion about the effect the fall of the White River Tephra had on the inhabitants of the Yukon. Workman has claimed that this event was catastrophic and may well be linked to the possible emigration of Athapaskan peoples to various localities in the northwest (Workman 1973). Though there is of yet no evidence linking the event to a human catastrophe of significant consequence, it certainly is an avenue of thought that needs to be explored. Moodie et al. (1992), have reviewed oral histories in regions of the Yukon, Alaska and Northwest Territories and have found interesting allusions to the event, indicating the eruption was significant enough to be imbued in human memory, but as of yet the consequences are not well understood.

Chapter Five: KdVa-8

History of Research at KdVa-8

Three seasons of fieldwork have been completed at KdVa-8. The site was discovered in 1990 during an archaeological survey initiated by the Selkirk First Nation and Yukon Heritage Branch, designed to study the history and archaeology of Tatlmain Lake. Twenty-seven shovel tests were dug at the site, which yielded 528 artifacts, most of which came from beneath a deposit of White River Tephra (Gotthardt 1992). Typologically, the assemblage was characteristic of a Northern Archaic Tradition occupation in the lower component, and a Late Prehistoric Period occupation in the upper component. Promising results from the testing phase led to a community-based archaeological excavation. During the 1991 field season, ten 1 x 1 meter units (Figure 5.2) were excavated at KdVa-8, and 1534 artifacts and several cultural features were added to the 1990 data. Charcoal from a hearth feature in the lower component of the site yielded a date of 3600 ± 200 B.P., (AECV-1560C) (Gotthardt 1992). The present project, sponsored by the Selkirk First Nation, Yukon Heritage Branch, the Northern Research Institute, the Canadian Circumpolar Institute and the University of Alberta, led to the excavation of an additional sixteen 1 x 1 meter units, which produced a further 3455 artifacts and at least three more hearth features. A second radiocarbon date from faunal remains produced a date of 1437 ± 41 B.P., (WK-9364) for the lower component.

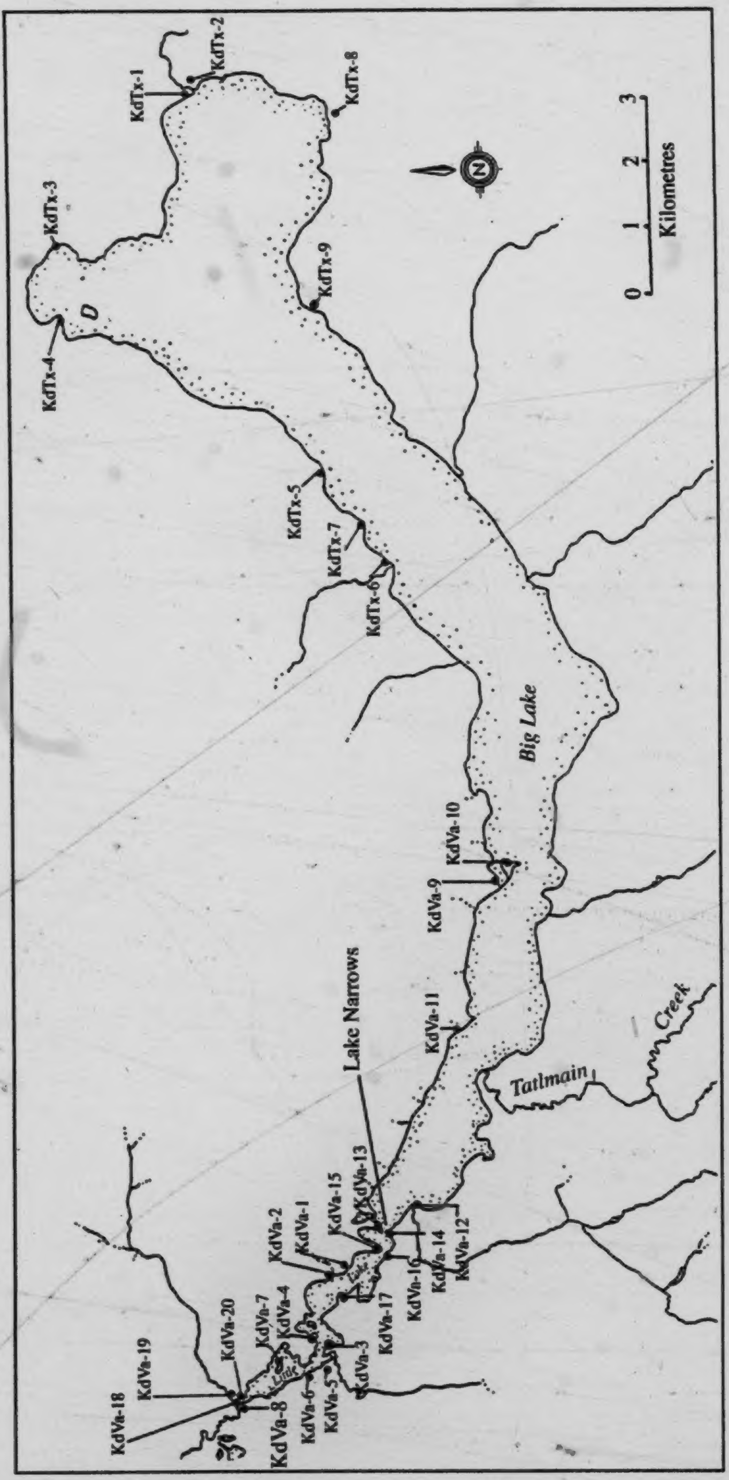

KdTx-2
KdTx-1
KdTx-8
KdTx-3
D
KdTx-9
KdTx-4
N
0
1
2
3
Kilometres
KdTx-5
KdTx-7
KdTx-6
Big Lake
KdVa-10
KdVa-9
KdVa-11
Lake Narrows
Tatlmain
Creek
KdVa-13
KdVa-15
KdVa-1
KdVa-2
KdVa-12
KdVa-14
KdVa-16
KdVa-17
KdVa-4
KdVa-7
KdVa-3
KdVa-20
KdVa-5
KdVa-6
KdVa-8
KdVa-19
KdVa-18

Figure 5.1: Archaeological sites around Tatlmain Lake. Modified from Gotthardt (1992)

Methods

The site datum and grid were established during the 1991 field season (Figure 5.2) and in that year the site was excavated in 5 cm levels within the site's natural layers. All artifacts larger than one centimetre in diameter were piece-plotted, and all other artifacts were mapped by unit and by layer. Vertical depth was measured below the surface and below the White River Tephra (WRT). All excavated sediments were screened using a 1/8" wire mesh. Artifacts recovered during screening were provenienced by unit and by 5 cm level (Gotthardt 1992).

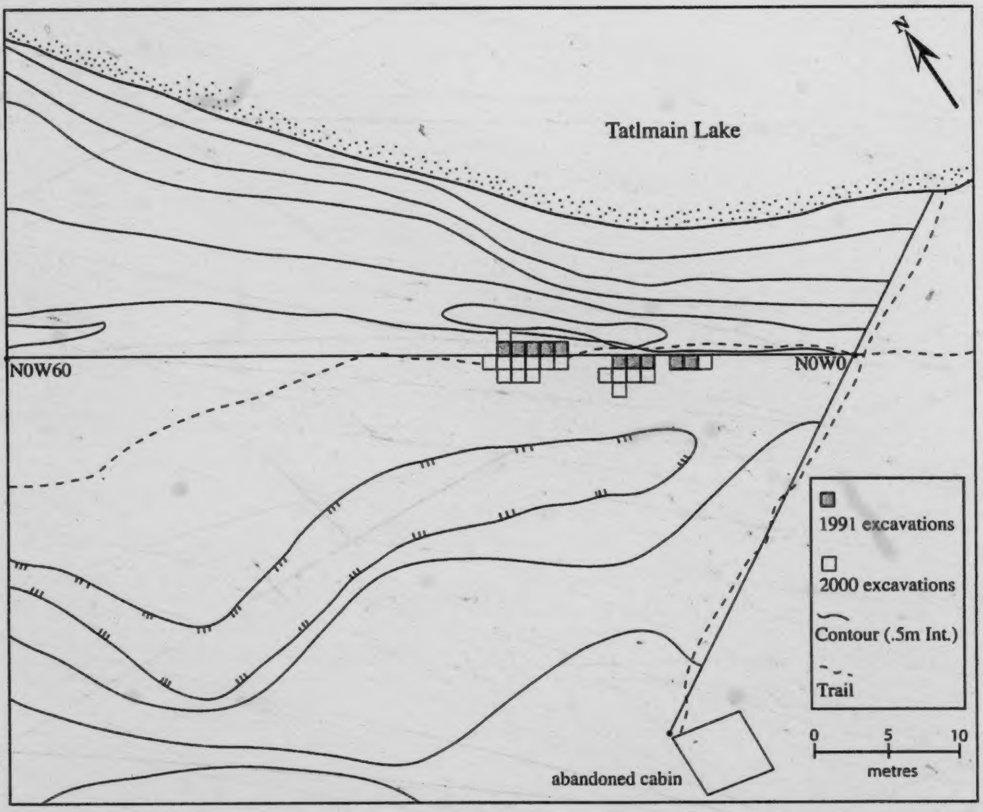

N
Tatlmain Lake
N0W60
N0W0
1991 excavations
2000 excavations
Contour (.5m Int.)
Trail
0
5
10
metres
abandoned cabin

Figure 5.2: KdVa-8 site map showing excavations from 1991 and 2000. Modified from Gotthardt (1992)

The 1991 datum and baseline were re-established and used for the 2000 excavations. Units were excavated by quadrant (northwest, northeast, southwest and southeast) in 5 cm levels within the natural layers. Only formed tools were piece-plotted. All other artifacts, including those recovered from the screening process, were catalogued by level and quadrant. Vertical depths were recorded from the surface of the southeast corner of each unit.

Plate 5.1: Students excavating at KdVa-8

Plate 5.2: Pat Van Bibber and student excavating

Stratigraphy

The stratigraphic profile at KdVa-8 is comprised of three layers of sediment in which two cultural horizons are present. The basal sediment (Figure 5.3 and Plate 5.3) consists of water-worn cobbles and gravel that were probably deposited during the wasting of a stagnant lobe of ice, which sat at the end of the lake during the late glacial period (Brent C. Ward [Geological Survey of Canada] personal communication; cf., Gotthardt 1992). Overlying this sediment is leached red sandy silt with evidence of a single palaeosol development. The conformity between this and the underlying cobble layer is gradational, usually beginning from 3 to 7 cm from the top of the silts, where there is an intermixing of the two sediments in the upper 10 to 15 cm of the cobble layer. The surface of the silt layer contains the older of the two cultural horizons, and was labelled "B horizon" during excavations; archaeological materials from these layers will be described as being in the Below Ash Component (BAC). The majority of the archaeological materials can be found within the first 5 cm of this sediment, although some artifacts have been moved downward through the profile because of bioturbation and other weathering processes. There appears to have been no appreciable deposition of sediments over top of this layer until the eruption of Mount Bona-Churchill.

The third sediment is a deposit of WRT overlying the deposit of sandy silts. This sediment has undergone soil development processes and O / A, B and C soil horizons are present within the profile. The top 5 to 10 cm of the sediment is a litter and humus layer, followed by about 10 cm of WRT that has been intermixed with organic materials from above by root action (labelled Mixed White River Tephra, in Figure 5.3). The bottom 10 cm of the WRT is relatively free from the effects of mixing by root action. Cultural materials in this sediment are found within the humus and the mixed portion of the WRT and are described as being in the Above Ash Component (AAC). There have been considerable secondary vertical movements of archaeological materials in this layer that prevented the possible stratigraphic separation of historic and prehistoric materials. For example, a piece of copper snare wire, an item not available in the Yukon until the 1800s, was recovered from well within the 1250 year old WRT.

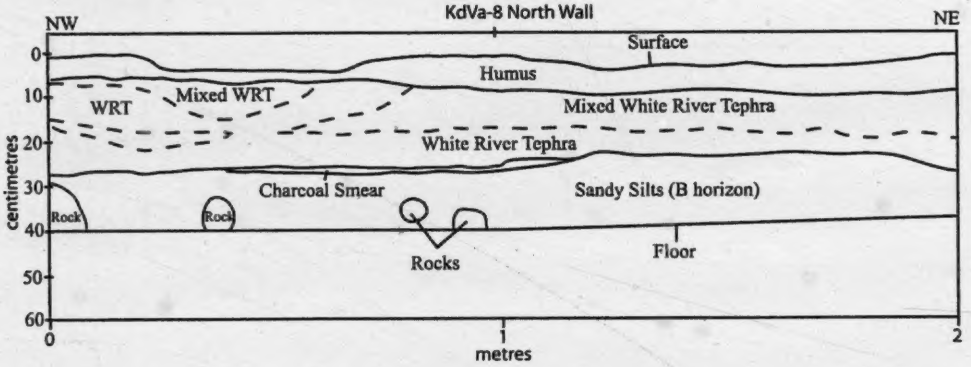

KdVa-8 North Wall
NW
NE
Surface
Humus
Mixed WRT
WRT
Mixed White River Tephra
White River Tephra
Charcoal Smear
Sandy Silts (B horizon)
Rock
Rock
Rocks
Floor
centimetres
0
10
20
30
40
50
60
0
1
2
metres

Figure 5.3: Stratigraphic profile at KdVa-8

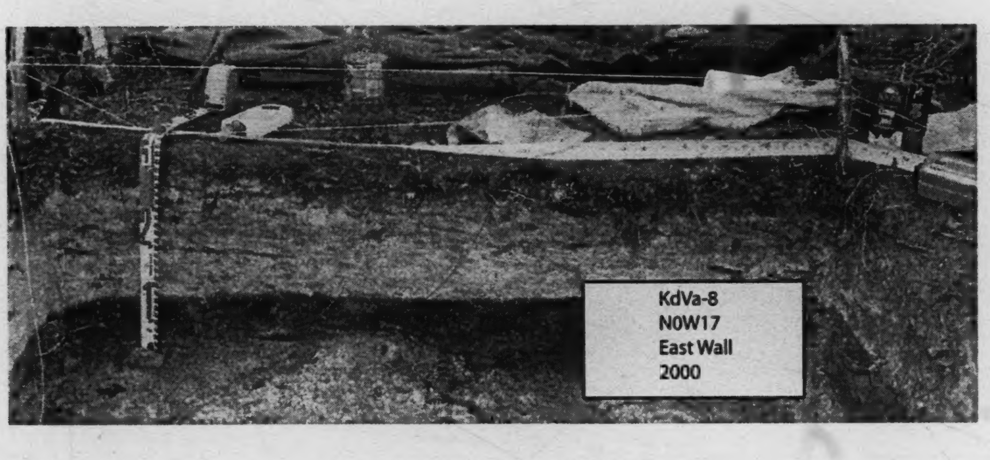

KdVa-8
N0W17
East Wall
2000

Plate 5.3: Wall profile at KdVa-8

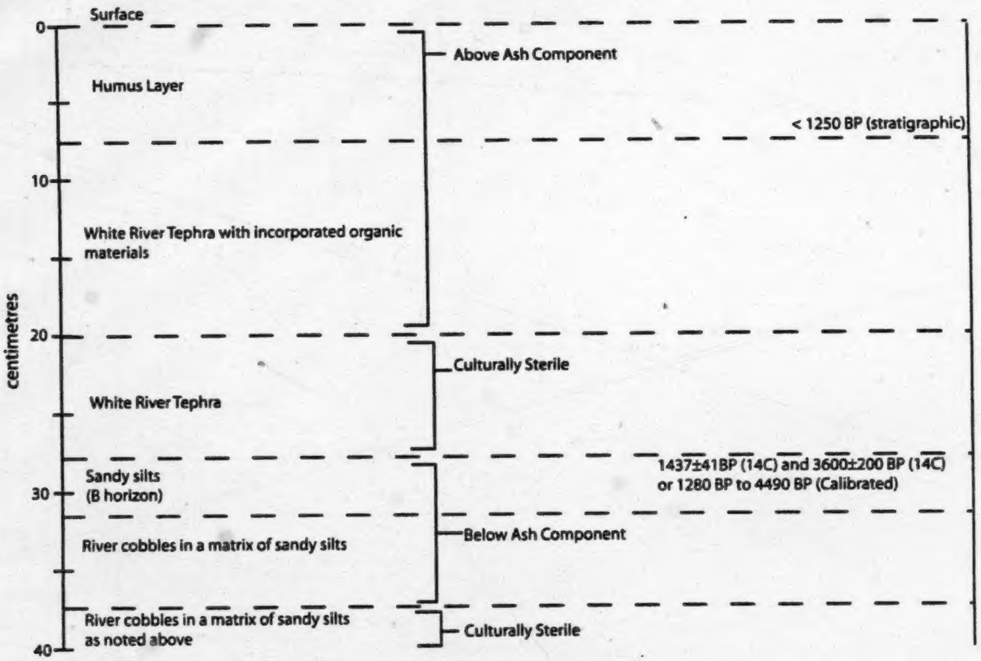

Surface
0
Humus Layer
Above Ash Component
< 1250 BP (stratigraphic)
10
White River Tephra with incorporated organic materials
centimetres
20
Culturally Sterile
White River Tephra
1437±41BP (14C) and 3600±200 BP (14C)
or 1280 BP to 4490 BP (Calibrated)
Sandy silts
(B horizon)
30
River cobbles in a matrix of sandy silts
Below Ash Component
River cobbles in a matrix of sandy silts as noted above
Culturally Sterile
40

Figure 5.4: Generalized stratigraphy for KdVa-8.

Chronology

No attempt was made to try and date the deposition of either the cobble layer or the sandy silt layer, though this information may have been useful to bracket the initial occupation of the site. Though there is little geological data outlining the origin of local surface features, it has been noted that there may have been a lobe of stagnating ice laying across the extreme west end of the lake at some point during de-glaciation (Ward personal communication; cf., Gotthardt 1992). It is not known how this affected water drainage in the area but a cursory examination of air photos and topographic maps indicates that the till deposits probably dammed the present drainage of the lake,

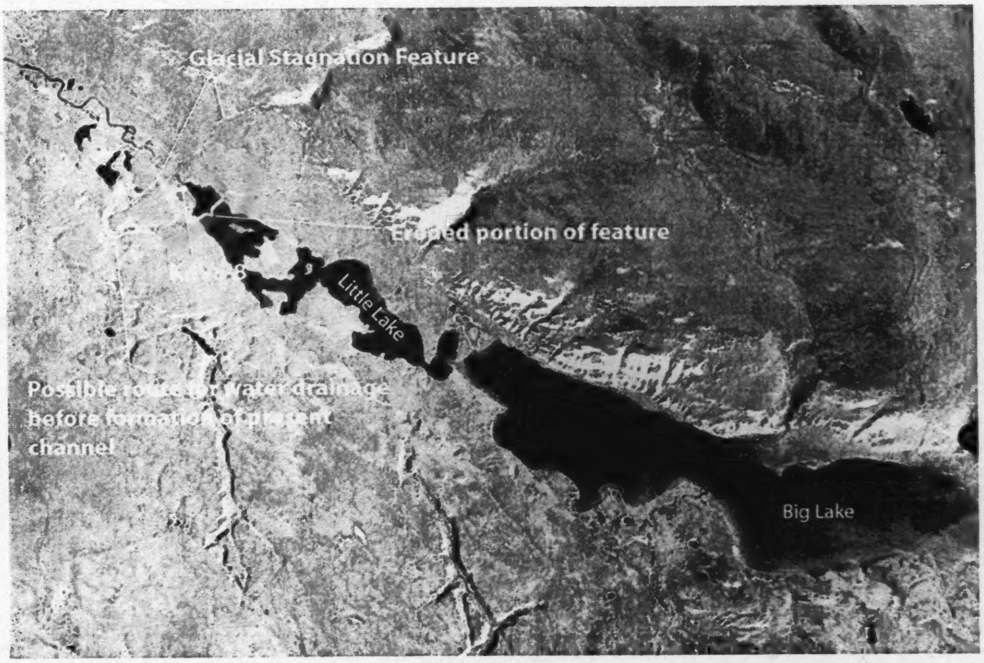

Glacial Stagnation Feature
Eroded portion of feature
KdVa-8
Little Lake
Possible route for water drainage before formation of present channel
Big Lake

Figure 5.5: Aerial view of Tatlmain Lake showing glacial features. Air photo borrowed from the Department of Indian Affairs and Northern Development, Yukon Region Library

and that early post-glacial drainage may have been further to the southwest. Figure 5.5 outlines the stagnation feature and one can see that the present channel eroded through the till after its initial deposition and that KdVa-8 sits on a low terrace of this till. Depending on how long this till dam persisted, it probably would have allowed lake levels to be up to five meters higher (estimate based on the height of the feature) than the modern lake level. Currently there is no geological time line for these events.

Two radiocarbon dates were submitted from cultural features in the BAC. Gotthardt (1992) submitted a charcoal sample (associated with oxidized silts interpreted to be a hearth feature in unit N0W16) for AMS dating, which resulted in a date of 3600 ± 200 years B.P., Calibrated, this date falls between 4520 years to 3460 B.P., in the 2-sigma confidence range. The second, a conventional date, came from an unburned moose metatarsal recovered in unit N0W22 and produced a date of 1437±41 B.P., Calibrated, this date falls within the years of 1342 to 1462 B.P., in the 2-sigma confidence range.

Lab Number	14C Date	Calibrated Ages	Provenience
AECV-1560C	3600±200 BP	2500BC to 1510BC 95.4% probability	Charcoal sample associated with a hearth feature near top of "B" horizon (2-3.5cm below White River Tephra)
Wk-9364	1437±41	540AD to 660AD 95.4% probability	Bone collagen from a unburned moose metatarsal on top of "B" horizon (0-2.5cm below White River Tephra

Table 5.1: Radiometric dates from KdVa-8

I find the discrepancies in the two dates to be both an interpretational quandary and a confirmation of the antiquity of the occupation of KdVa-8. Whenever one receives two dramatically different dates in a single stratigraphic component of a site, caution must be exercised before accepting or rejecting either of the results. Two possibilities are apparent: First, one or both of the dates are erroneous and should be rejected. Second, both dates are accurate and reflect the presence of multiple human occupations within a single stratigraphic component. The 3600±200 B.P., date may be problematic since there is usually a degree of uncertainty when associating charcoal with archaeological features. The moose metatarsal, dated to 1437±41 B.P., is certainly archaeological thus the weight of confidence is placed with it. However, I will choose not to reject earlier date at present, as I am confident of Gotthardt's (1992) association of charcoal and feature; as well, I feel the presence of multiple occupations in the BAC is possible, as will be outlined in Chapter Seven.

The fall of the White River Tephra has been reliably dated to approximately 1250 B.P. (radiocarbon years) (Clague et al. 1995) and thus all archaeological materials in and above this tephra must post date that event. I did not submit any radiocarbon samples from hearth features in the AAC, as it was obvious that I would not be able to distinguish different periods of occupation within the layer. As well, the west end of Tatlmain Lake was burned during a forest fire in 1919 A.D., making the identification of cultural versus natural charcoal difficult. The stratigraphic dating of archaeological materials from the AAC is suitable for the purpose of this thesis. Thus, precontact materials from above the WRT date from 1250 B.P., (stratigraphic) to the time of direct European contact, in this case, after the establishment of old Fort Selkirk in 1848 A.D., (Johnson and Legros 2000). Historic materials recovered from the same layer of the site could date from European contact to the abandonment of Tommy McGinty's cabin in the 1980s (Gotthardt 1992).

Chapter Six: Archaeological Collections

Raw Materials

There is very little information on the location and composition of stone quarries in the Yukon, thus comparative data are limited. The classifications presented here are the result of the examination of a 58% sample of the total lithic collection. All types are based on classifications presented in Gotthardt (1992), with the exception of those from known lithic quarries.

Above Ash Component

Cherts of varied colour and texture represent the most abundant raw material present in the collection (Table 6.1). Of these, grey chert with black lines is most common, suggesting that there might be a quarry for this type in the Tatlmain region. Black chert is not common in the collection but I have highlighted it in this review because it is visually quite similar to samples I have examined from bedrock sources in the vicinity of the Tombstone Mountain Campground on the Dempster Highway, as well as related lithic materials found in gravels of the Klondike River drainage. This material may have been a past trade item though there is no quantitative data to support this suggestion.

Yellow agate and white chalcedony, both present in small quantities, are locally available in the Northern Tutchone traditional territory. The former occurs in small nodules at a basalt bedrock source in the hills just west of the village of Carmacks, a location I visited in the summer of 2002. The white chalcedony source is said to be located near the west end of Rowlinson Creek also in the vicinity of Carmacks (Gotthardt and Hare Personal Communication, 2002). Both sources are roughly 60 to 70 kilometres

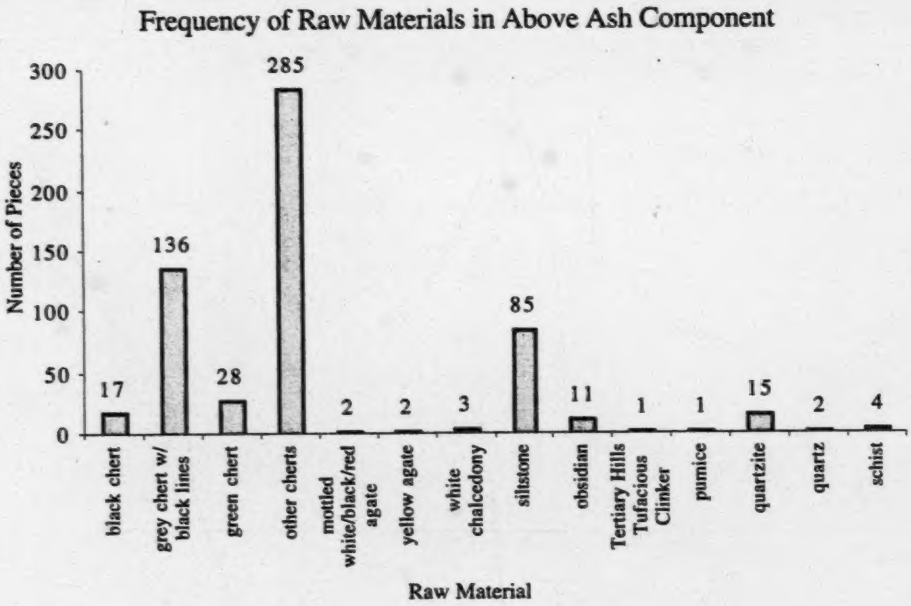


Table 6.1: Frequency of raw materials in Above Ash Component

away from Tatlmain Lake. I suspect that the mottled/black/white and red agate is also from the vicinity of Carmacks (agate sources are abundant in the region, [Gotthardt and Hare, ibid.]) and may possibly be a variant of the yellow agate.

Dr. Raymond J. Le Blanc (personal communication, 2001) identified an end-scraper fragment made of Tertiary Hills Tufacious Clinker (THTC) (Cinq-Mars 1973). THTC is found in the Tertiary Hills region of the Northwest Territories at localities between the Keele and Great Bear rivers, roughly 600 km (straight line distance) to the east of Tatlmain Lake. Several types of obsidian are present in the collection. Samples were submitted to the Department of Chemistry at Simon Fraser University for X-ray fluorescence analysis. One sample was consistent with the Hoodoo Mountain A source located near Kluane Lake, 270 km (straight line distance) to the south (James 2002). Also present was Mt. Edziza flow 3 obsidian (James ibid.), from sources in the vicinity of the Stikine River in northwestern British Columbia roughly 750 km (straight line distance) to the south. There were also three additional samples of obsidian from unknown sources.

The last raw material type I want to discuss is not shown in Table 6.1 because it is not stone but metal. Four artifacts made of native copper were recovered during excavations at KdVa-8. Low grade copper nuggets are present in alluvial contexts from the northeast slopes of the St. Elias Mountains, particularly in the regions between Kluane Lake and the White River, as well as on the south slopes of the Coast Mountains on the Copper and Chitna rivers (Franklin et al. 1981; Kindle 1953). Ethnographic evidence suggests that the precontact distribution of copper to the interior of the Yukon and Alaska is attributed to trade with coastal societies such as the Ahtna (Pratt 1998: 79) or interior groups such as the Southern Tutchone and Upper Tanana people (McClellan 1975: 509); it is not known whether the copper artifacts at KdVa-8 were acquired as finished products or as raw nuggets that were later fashioned into tools.

Below Ash Component

Below Ash Component raw materials were similar to those from the AAC (Table 6.2), however, there are some differences in the frequency of material types, the most notable being the vast predominance of green chert as opposed to grey chert with black lines. Again, the high frequency of green chert may indicate a local source. In addition to the previously described agates, grey chalcedony is present in the BAC; there is no known source for this type. Hoodoo Mountain and Mt. Edziza obsidian are both present in the BAC. Absent from the BAC are THTC and native Copper. In the northwest, interior native copper technology tends appear during the last two millennia. For example in central Alaska, it occurs at Dixthada around 1560±50 A.D. (Shinkwin 1979);

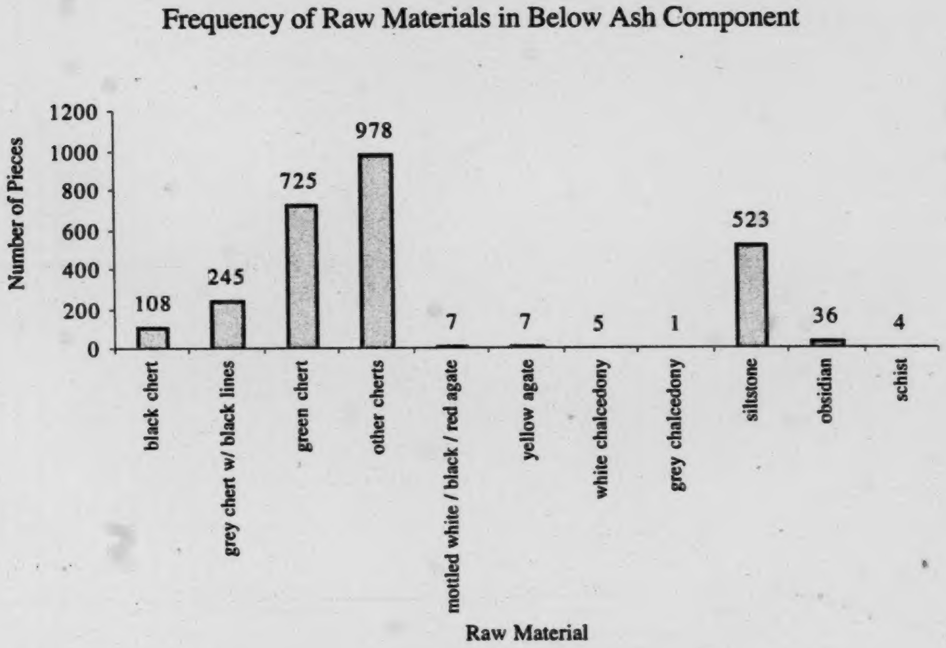


Table 6.2: Frequency of raw materials in Below Ash Component

in the northern Yukon at Rat Indian Creek after 1510±80 B.P., (and probably as early as 2010±70 B.P., level 6a) (Le Blanc 1984). Copper is found at Klo-kut from 750 to 300 B.P., (in the Late Prehistoric Period) and from 1250 to 750 B.P., (in the Early Prehistoric Period) (Morlan 1973). Thus, the absence of copper at KdVa-8 is consistent with temporal trends in its distribution. Tertiary Hills Tufacious Clinker is also absent in the BAC, though this is not a drastic variation from the AAC as only one piece of the clinker was recovered from the latter component. Cinq-Mars (1973: 18) has identified THTC in Little Arm and Gladstone phase sites discovered by MacNeish (1964) in the southern Yukon; this material is widely distributed in the interior northwest (ibid.). These date to before 3000 B.P., indicating that the material was being traded into the region before the Late Prehistoric.

Debitage Analysis

The 5357 pieces of debitage recovered from three field seasons at KdVa-8 were sampled using a stratified random approach where debitage from each unit was randomly selected. The sample consisted of 10.6% of the total debitage recovered. I used a simplified lithic reduction strategy analysis system, which arose in the 1950s and 1960s from the experimental flintknapping work of people such as François Bordes and Don Crabtree (Andrefsky 1998: 3-4), supplemented by suggestions outlined by Magne (1985: Chapter 4). Reduction stage analysis attempts to organize the by-products of stone tool manufacture into sequential units (early, middle and late stages) that are directly attributable to the corresponding sequences of stone tool production that have occurred at a site. Unlike tools, debitage is not curated and therefore provides a useful means of assessing stone production in the absence of a significant implement sample. The following is a brief summary of the key indicators of reduction stage.

Magne (1985: 120-125) has found that platform and dorsal scar counts are the most accurate indicators of reduction stage. As the reduction of a stone artifact progresses, the number of platform scars on flakes should increase. The platform is a small part of what used to be the edge of a parent artifact and platform scars are remnants of previous flakes removed from a tool. Dorsal scars refer to the number of scars present on the dorsal face of a flake, and like the platform scars, the count increases as a tool nears completion (ibid.). Flakes removed during an early stage of reduction tend to have one scar and/or cortex on the platform or dorsal face. Middle stage reduction flakes tend to have between one and three depending on the size of the flake. Later stage reduction debitage usually will have three or more scars. I recorded whether a platform or dorsal face had 1, 2 or >3 scars.

Initiation type is of lesser importance in assigning reduction stage, but is nonetheless a useful indicator of tool production. Hertzian and Bending initiations are the two types commonly recorded (Kooyman 2000: 82). The former is observable by the presence of a salient bulb of force, which indicates the use of a hard hammer when removing flakes and is more common in earlier stage debitage. A bending initiation, signified by the presence of lipping on the platform, indicates the use of a soft hammer and is more commonly found in later stage debitage. In my assessment of a flake's stage I noted the presence of these features though scar counts were the main index. However, these attributes were helpful in discriminating late stage debitage attributed to unifacial tools (which have one platform scar) from early stage shaping debitage (also with one platform scar). Exterior platform angle is the angle between the dorsal face and platform of the flake. As a biface nears completion the edge angle should decrease (depending on the tool being made). Likewise the exterior platform angle on flakes removed from that biface will also decrease. While Kooyman (2000: 83) suggests the use of this attribute in stage identification, Magne (1985: 114) has noted that edge angle does not necessarily decrease in a linear fashion during reduction; therefore, I qualified my assessments using non-metric observations of the platform angle on a flake by flake basis.

In the present analysis, all flakes were assigned to reduction stage individually, and not sorted into stages using statistical means. I classified all flakes as (1) early stage, which would include primary flakes and core reduction flakes; (2) middle stage, including shaping and some thinning flakes; and (3) late stage, including bifacial reduction and thinning flakes, as well as sharpening and re-sharpening flakes. Core shatter was removed from the sample and is discussed with formed tools. Flake fragments lack the attributes needed to confidently assess their reduction stage.

Above Ash Component:

(Total N = 704; Sample N = 140)

Results of the debitage analysis (Table 6.3) indicate that functional tools were being created at the site. Eighty percent of the debitage could be placed in the middle to late stage category (36% and 44% respectively). Twenty percent of the debitage was attributed to an early stage of reduction. The presence of early stage debitage suggests that some tools were being produced from primary cores that were quarried in the immediate vicinity of the site; the source of this material might have been cobbles from Mica Creek though they have not been tested for compatible lithic types. Relative to the BAC there is greater frequency of early stage debitage. The AAC sample was compared to observed trends in the BAC sample using a Kolmogorov-Smirnov (K-S) test, and a significant (at a .05 level) inter-level difference in lithic reduction strategies could not be detected due to the small sample size of the former. An examination of different raw material classes indicated significant variations in the reduction stages of finer grained materials (e.g. chert, obsidian and agate) compared to coarser ones (e.g. siltstones). K-S tests indicate that fine-grained materials (Appendix 1.1) vary significantly with siltstone materials (Appendix 1.2), that tend to have less late stage and more early stage debitage. Though the results were significant I believe the siltstone sample size is problematic. Coarse sandstone and quartzite could not be compared due to the extremely small sample of the types. In regards to the observed frequency of siltstone debitage, the formed tool

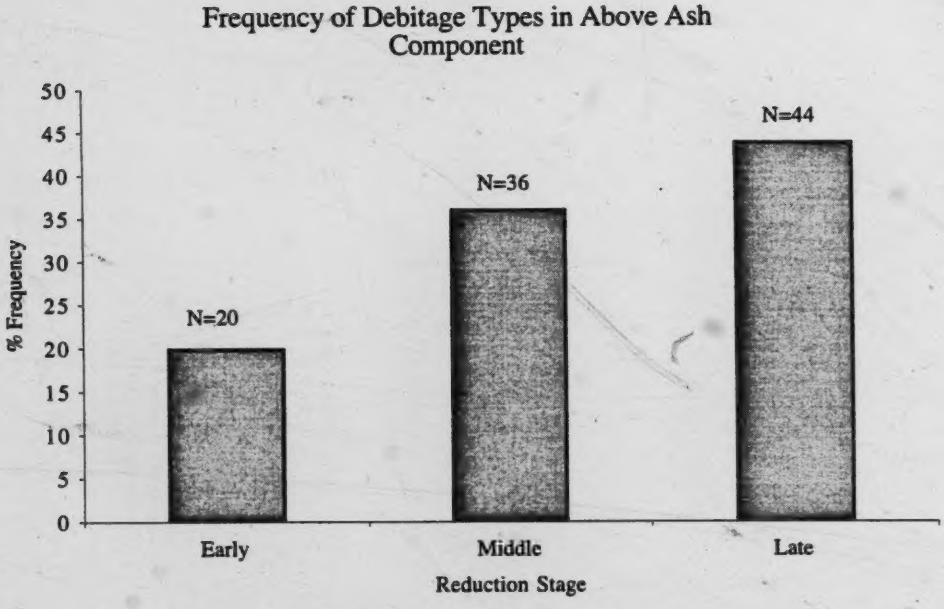


Table 6.3: Frequency of debitage types in Above Ash Component

assemblage contains unrefined tools made from siltstone pebbles (e.g. split cobble chopper, a cobble spall scraper, two end scrapers, and one wedge; see p. 53-55) and it is possible that the early stage debitage is related to the production of similar artifacts. Of the debitage sampled, 29% were classified as flake fragments that were not assigned to a stage of reduction (Appendix 1.3). Of these, the majority (80%) were made of materials classified as being fine grained while 20% were of coarser grained materials; I would speculate that flake fragments could be organized into reduction stages that correspond to their raw material classes.

Below Ash Component:

(Total N = 4653; Sample N = 428)

Analysis (Table 6.4) of the debitage from the BAC has again revealed that functioning tools were being produced on site. Late stage debitage represents 46% and middle stage debitage represents 47% of the sample, however, there is less early stage debitage (7%) than there was in the AAC. When compared to observed trends from the AAC using the K-S test, a significant difference (at .05 level) is indicated, though the small size of the comparative sample remains problematic. Nonetheless, the low frequency of early stage debitage suggests that the use of locally available stone was less common. It may also reflect that unrefined pebble tools were less important in the earlier tool kit; the corresponding formed tool collection contains two tools (a single cobble spall and one spokeshave) manufactured on early stage flakes. No significant variation (at .05 level) in reduction stages (Appendix 1.4 and 1.5) between finer and coarser grained materials (as described above) could be detected. Again, quartzite and sandstone samples were too small to provide a useful appraisal of reduction stage. Flake fragments comprise 32% (N=139) of the debitage sampled and, similar to the AAC, 81% of this is classified as a finer grained (e.g. chert and obsidian) and 19% is coarser grained (siltstone) material (Appendix 1.6). Again I will suggest that flake fragments correspond to reduction stages of their like raw material classes.

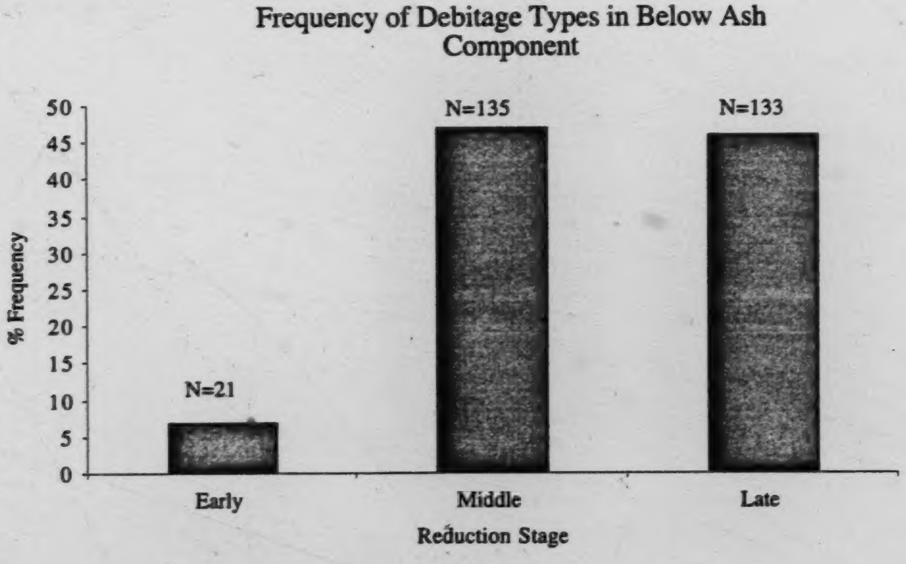


Table 6.4: Frequency of debitage types in Below Ash Component

Formed Tools

Historic Component

Despite the well documented post-contact history of settlement at Tatlmain Lake (Gotthardt 1987), there were few Euro-Canadian artifacts recovered from the excavations at KdVa-8. With the exception of a single Hudson's Bay Company trade bead, none of the historic materials recovered have much diagnostic value, certainly none that could be used to differentiate early historic from recent occupations. It is important to keep in mind that there is no actual stratigraphic separation of historic and Late Prehistoric artifacts in the AAC. The following is a brief description of the historic component collections.

Wire Snares (N=3): (Plate 6.1 d-e)

These were formed by threading one end through a small loop in the opposite end of the wire, creating a lasso-like snare. Two of these are made of steel wire and the third is made from copper wire.

Wire Hanger (N=1):

The artifact is constructed from two strands of wire that have been twined together creating a "Y" shaped piece (Plate 6.1f). The coiled end was turned into a hook and small loops (for attaching to a pot or kettle) were rolled onto the other ends. The artifact was probably used to suspend a pot over a campfire.

Metal Vessel Fragments (N=3):

Three vessel fragments recovered during excavations at the site consist of rim fragments. One has a small hole where a handle was attached (Plate 6.1b). Though no discernible decoration remains, there are small amounts of paint noticeable on the surface of the pieces indicating that they were decorated to some degree.

Iron Fragments (N=3):

Three pieces of extremely corroded iron were recovered; their function is not apparent.

Nails (N=1):

This piece is a galvanized wiredrawn nail; it is in fairly good condition with little rust suggesting it is relatively modern.

Sharpening Devices (N=2): (Plate 6.1 a, c)

Sharpening devices consist of a small file and one whetstone. The file was made of hardened iron and is badly corroded. The whetstone is made of a medium grain bonded abrasive (manufactured) which is very heavily worn. Subsequent to use the piece was broken and probably discarded after breakage.

Beads (N=2): (Plate 6.2)

Two beads were recovered, the first being a small glass tube bead with a black core and burgundy outer coat. The second specimen is a silver cylinder bead. The former type was circulated by the Hudson's Bay Company before and during the gold rush era, while the latter is a modern type (Clark 1995; Karklins 1982).

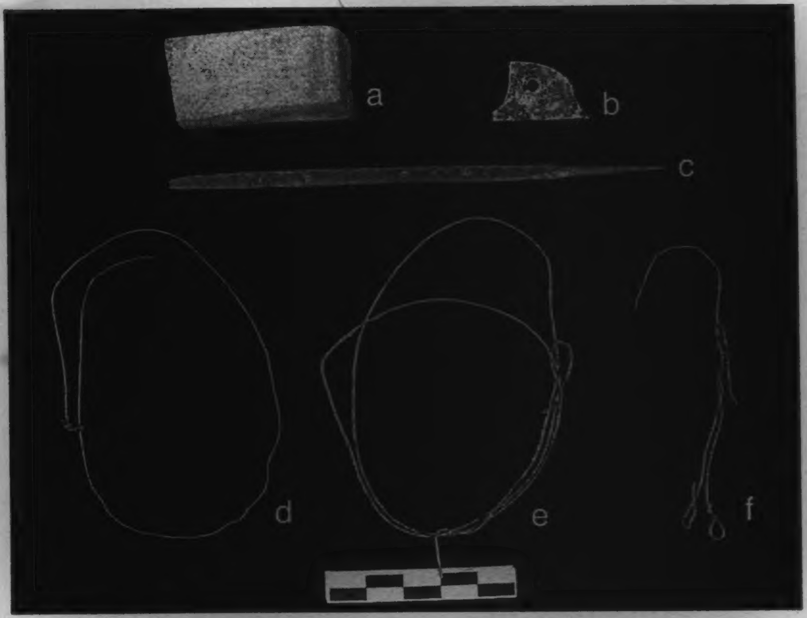


Plate 6.1: Historic artefacts

Plate 6.2: Beads from historic component. Actual size.

Above Ash Component

Core Shatter (N=7):

There were seven pieces of core shatter recovered in the Above Ash Component of KdVa-8, comprised of various raw materials including chert, chalcedony, siltstones and quartzite. None of the fragments have any evidence to suggest the use of specialized cores. Three of the pieces have a small amount of cortex indicating early stage core reduction.

Retouched Flakes (N=2):

Two retouched flakes were recovered from the AAC. Both examples have extremely delicate retouch. One example (#827) is made on a banded grey chert blade-like flake that has retouch on both lateral margins. No wear is evident on the edges. The second example is made on a black mudstone shaping flake with retouch on the right lateral margin. This example seems to have been polished over the entire dorsal and ventral surface as though its use somehow included the entire piece and not just the edge.

Utilized Flakes (N=2):

There are two examples of utilized flakes from this component, both of which have moderate use wear.

Projectile Points Bases (N=2):

Artifact #556 (Plate 6.3a) appears to be the base of an obsidian Kavik point (Morlan 1973: see Plate 6, Type Ib). The base is narrow (0.7 cm) and with lateral edges that expand distally to the point where the piece was broken. Both lateral edges are well worn. Exceptionally fine workmanship is evidenced in the flaking patterns on the piece. Artifact #365 (Plate 6.3b) is the basal portion of what appears to be a straight based oblanceolate projectile point or biface made from a fine reddish brown siltstone. The lateral margins expand distally to the point where the piece is broken. Both lateral edges and the base were ground.

Copper Projectile Points (N=1): (plate 6.4)

This artifact (#102) is a tanged projectile point made of native copper. It is a roughly fashioned example of the type, yet closely resembles other such points from the

Yukon and Alaska region (see Le Blanc 1984: Plate 96; Franklin et al. 1981: Figure 10; Shinkwin 1979: Figure 28). The stem expands distally from the base to the shoulder of the point and is rectangular in cross-section. The blade has a diamond shaped cross-section. There is some evidence of grinding on the piece, but there has been minor corrosion of unconsolidated copper, which has flaked off thus masking details of its construction. The lateral edges of the blade seem to be worn, indicating that this piece was in use prior to its deposit at the site.

End Scrapers (N=2):

There are two examples of end scrapers from the AAC, both of which are made on early stage reduction flake blanks. Artifact #467 (Plate 6.5c) is made from a quartz primary flake with coarse retouch to the distal end, suggesting that the knapper was trying to make a denticulate edge. There is moderate use wear on the scraping edge. Artifact #799 (Plate 6.5b) was made out of a black mudstone secondary flake blank probably from a split pebble (roughly 50-75% cortex present on the dorsal surface). The distal edge was modified using fine retouch creating a regular convex scraping edge. The right lateral edge has been delicately retouched and the left lateral edge has moderate use wear but no retouch. Both end scrapers are very expediently fashioned.

Scraper Fragments (N=1): (Plate 6.5a)

One scraper fragment is the working edge of a tool made of Tertiary Hills Tufacious Clinker. Unlike the other scrapers from this component, it does not appear to have been an expedient tool. The working edge of the piece has very heavy wear. The nature of the raw material indicates this may have been a trade item originating from the eastern slopes of the Mackenzie Mountains in the Keele River region of the Northwest Territories (Cinq-Mars 1973).

Stone Wedges (N=3):

Two of the three stone wedges recovered are bifacially worked and made from grey chert with black lines. Artifact #476/482 (Plate 6.6b) (refitted) was found in two segments, broken down the length of the piece. The distal portion of the left half of the wedge is shorter than the right half due to loss of material from the impact that broke the wedge. As a whole, the wedge is rectangular in shape and was fashioned on a large flake blank, which was unifacially modified, creating a very sharp distal bit. The platform of the piece is shattered but retains evidence of heavy crushing. The distal end is missing, probably due to shattering. The right lateral margin has been retouched into a side scraper that retains evidence of light use wear. This piece is similar to Le Blanc's (1984, see Plates 17-20) pièces esquillées subclasses 2 and 6, due to the distal to proximal orientation of the bipolar blow, as well as its being bifacially modified as a result of the bipolar impacts, not purposeful flaking.

Artifact #477 / 528 (Plate 6.6c), is similar to the above specimen in material type and construction; it was also found broken longitudinally. There is evidence of crushing on the distal, proximal, and the lateral edges. As with the previous wedge, the distal end of the left lateral edge was retouched and has evidence of light use wear. This specimen is a combination of Le Blanc's (1984, see Plates 17-20) subclasses 1 and 2, as it has bipolar crushing on the normal axis and at a right angle to the normal axis, though crushing on the proximal-distal axis is more prevalent. Bifacial flaking of this tool seems to be purposeful, not incidental to bipolar percussion.

The third specimen (Plate 6.6a) is made on an unmodified siltstone split pebble (50-75% cortex on the dorsal face) with bipolar crushing oriented along the proximal-distal axis of the piece. The entire right lateral margin has been retouched and has evidence of significant use wear. The left lateral margin is shattered due to a blow originating from the distal end of the piece. This piece fits into Le Blanc's (ibid., Plate 17-20) subclass 2 pièces esquillée.

Cobble Spalls (N=1): (Plate 6.7a)

There is one example of this tool type (Le Blanc 1984: 238) in the Above Ash Component. It is made from an ovoid primary flake removed from a water-worn dark brown quartzite cobble. There is heavy use wear on the convex distal end of the spall as well as light use wear on the flat right lateral edge. This implement is alternatively called a boulder spall (Morlan 1973; Workman 1978) and was thought to be a hide processing tool.

Tabular Bifaces (N=2):

This artifact type is functionally equivalent to the above cobble spall but is produced in a different manner and thus placed in its own category (see discussions by Workman 1978: 237; and Le Blanc 1984: 276-277). Both examples (#193 and 207) are made out of layered schist removed from a tabular core. Both pieces have symmetrical bifacial edge modification, and are well worn from use. Piece #193 (Plate 6.7b) is the distal fragment of a scraper, which had a convex working edge. Piece #207 (Plate 6.7c) is whole and has a more plano-convex working edge.

Split Cobble Choppers (N=1): (Plate 6.8)

This artifact is a large coarse-layered sandstone river cobble that was split in half with at least three blows to create one sharp chopping edge on the left lateral side (relative to the striking platform). There is evidence for heavy crushing on the left lateral edge, which could be mistaken for bipolar core production in the absence of a striking platform. This piece is similar in essence to what is called a cobble biface (Anderson 1988: Plate 17) but a usable edge was created without having to resort to bifacial flaking.

Edge Ground Artifacts (N=1): (Plate 6.9)

Artifact #270 is a semi-lunar abrading tool (similar to ones in Le Blanc 1984, Plate 38 and 39) made from what appears to be petrified wood or a laminated mudstone. The piece is made from a tabular spall (it is unclear if it was a natural find or processed by humans) with a straight lateral edge that has been used for grinding of a hard material as indicated by the presence of deep striations on the lateral edge. The striations are also oriented parallel to the long axis of the edge. The edge has been thoroughly worn into a convex shape (in cross section) indicating prolonged use. Morlan (1973: 270) describes similar objects as Polished Fragments and suggests they were used as a whetstone for polishing or sharpening stone, copper, wood and bone tools; the deep striations present on the this artifact may indicate it was used on stone implements.

Copper Blanks (N=3): (Plate 6.10)

Three copper objects were recovered from the Above Ash Component of the site. All are similar in shape, with an asymmetrical fish-like form with one thick and one narrow end and are all have rectangular cross sections. They are made of rolled and pounded copper sheets. These examples are almost identical to copper blanks recovered by Shinkwin (1979, Figure 11 a-e) at the Dixthada site, in central Alaska. Workman (1978, Figure 44 a) describes these objects as bipointed copper pieces with expanded midsections and compares them, with some reservation, to awls, fish gorges or possibly a form of projectile point. I tend to agree with Shinkwin's (ibid.) suggestion that these objects are tool blanks. Nonetheless, corrosion of unconsolidated copper on the specimens has prevented me from evaluating any pertinent wear patterns, thus one can only guess at the pieces' true function.

Copper Scraps (N=1):

One scrap of flattened copper sheet was recovered from excavations. It appears that this has come from a pounded copper sheet or possibly it was flaked off of an unconsolidated copper blank.

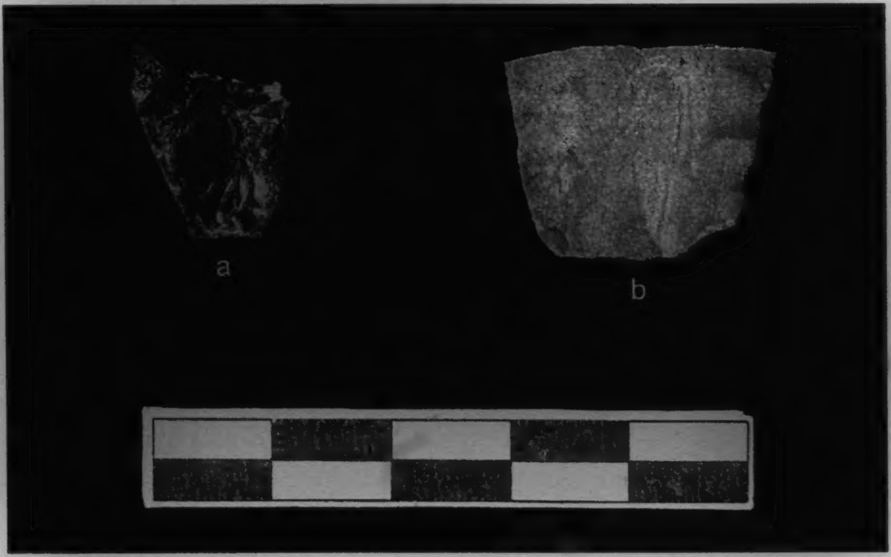


Plate 6.3: Late Prehistoric Period point bases

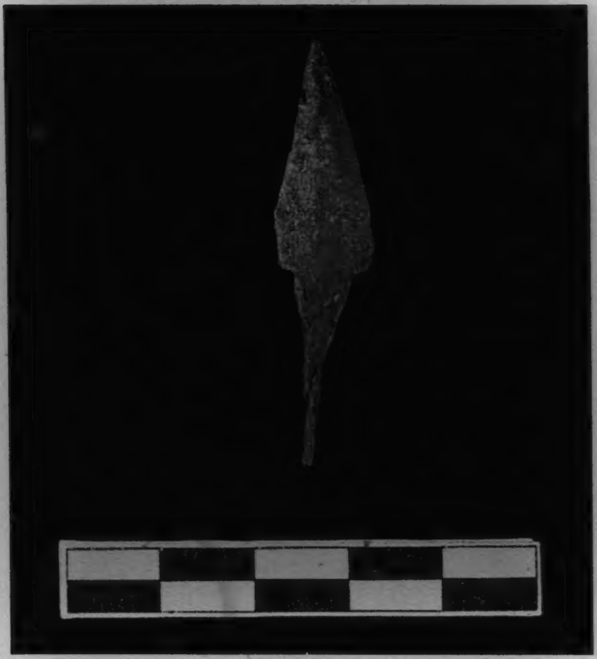


Plate 6.4: Copper projectile point

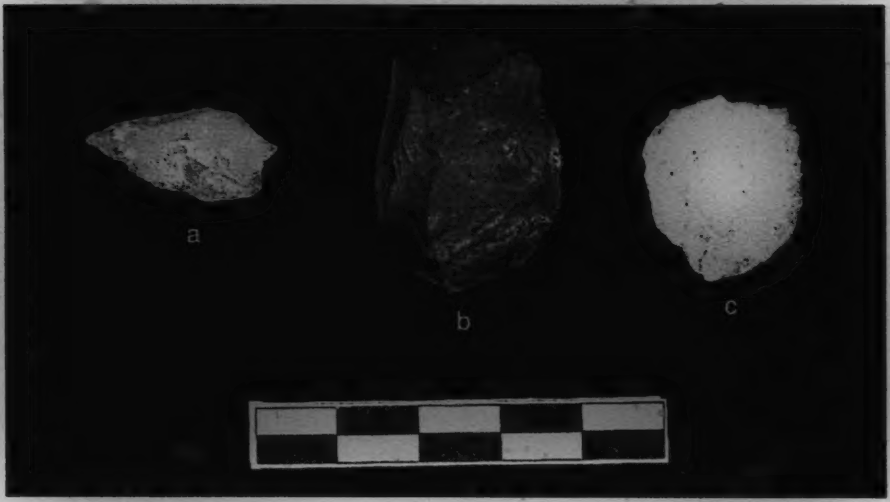


Plate 6.5: End scrapers

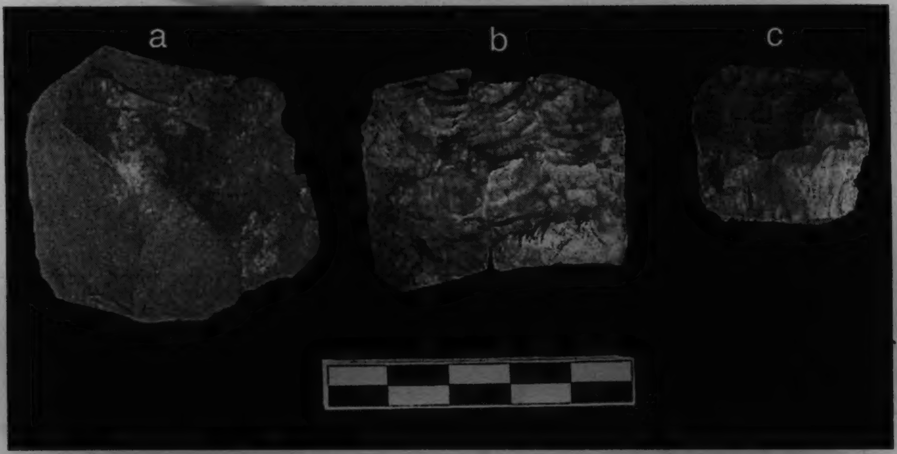


Plate 6.6: Stone wedges

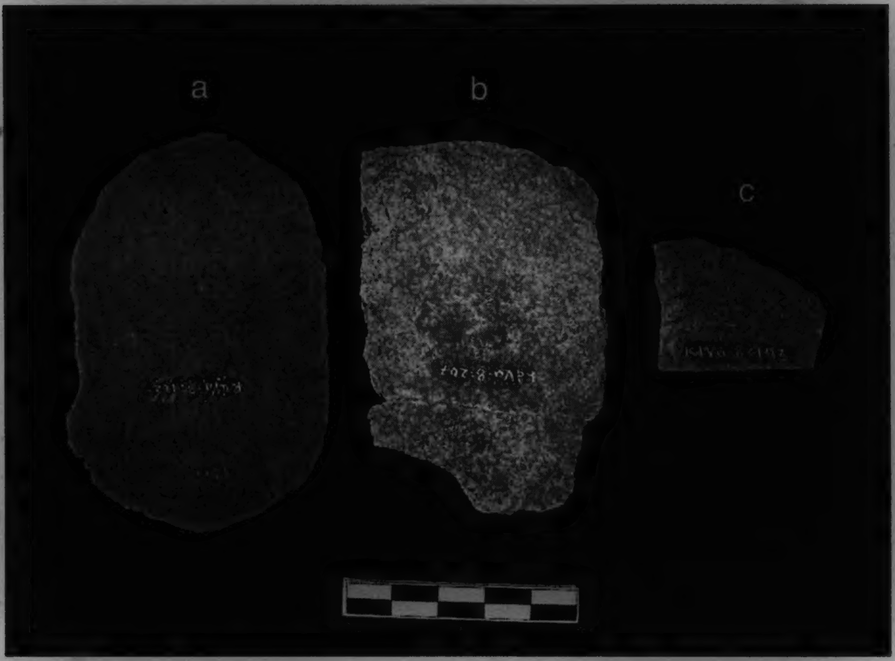


Plate 6.7: Cobble spall and tabular scrapers

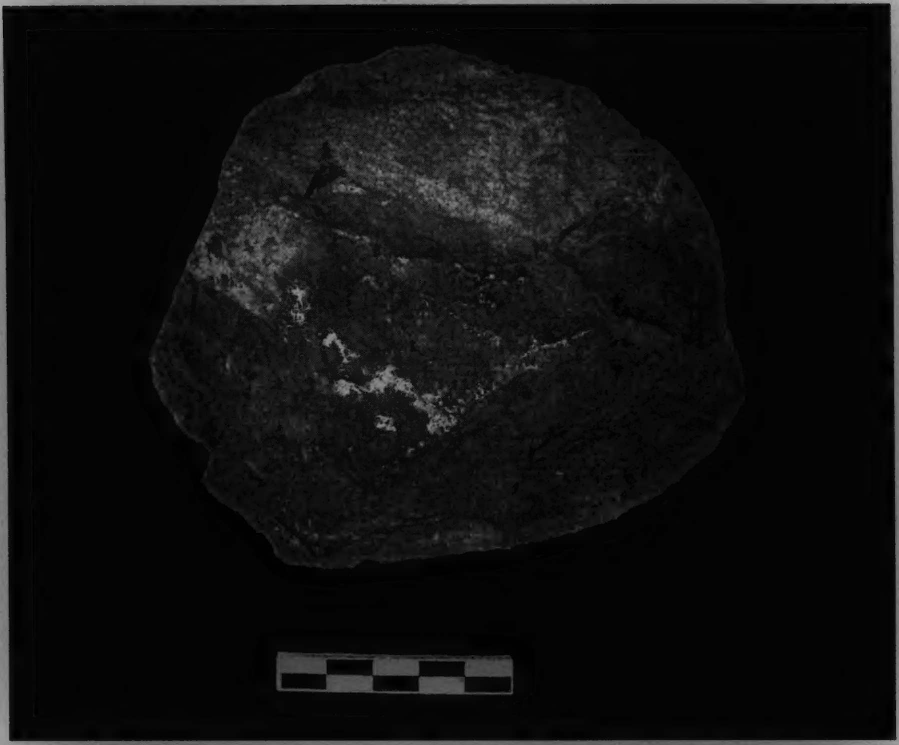


Plate 6.8: Cobble chopper

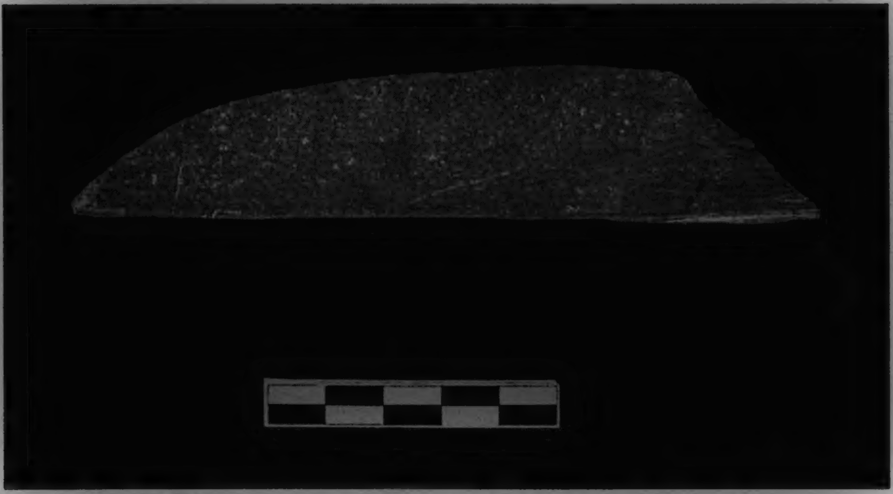


Plate 6.9: Edge ground artifact

Plate 6.10: Copper blanks

Below Ash Component Collections

Cores (N=1):

Two core fragments (#499 and 508) from this component were refitted into one core. From the break features evident on the face and platform, it is obvious that the cobble blank was broken by bipolar reduction, which split the cobble into at least three pieces (the rest of the core was not recovered). After becoming separated from the rest of the core three flakes were removed from piece #508 before it was discarded. Artifact #499 was not modified after the initial processing of the cobble.

Core shatter (N=12):

All examples of core shatter appear to be derived from flake cores. A variety of raw materials were present in the sample of core shatter, indicating that the reduction of numerous cores was taking place at the site.

Retouched Flakes (N=17):

All of the sixteen retouched flakes recovered were made on middle stage reduction flakes, probably due to the high frequency of this flake type in the assemblage. It is difficult to evaluate the actual function of this class of expedient tool, though fine retouch on the edges and minor use wear characterize all examples in the collection, suggesting that these tools were being used for detailed work. Though these artifacts are expediently fashioned, it is possible that they were curated for extended periods of time.

Utilized Flakes (N=11):

The eleven utilized flakes identified in the assemblage all seem to take on various form and function. Edge wear varies from light to extremely heavy and the utilized edges take on a variety of forms suggesting they were used for differing functions.

Oblanceolate Projectile Points (N=2):

Two examples of this point type were discovered at the site. Artifact #3 (Plate 6.11a), was discovered in a test pit in 1990, and is made of a dark brown coarse siltstone. The piece is quite large (8.5 cm long) with its maximum width located near the distal tip of the point. Though this piece takes the form of a projectile point, the flaking is rough and a flaw in the raw material resulted in a very large awkward projection rising out of one of the lateral margins. The use wear on all edges of the biface is very heavy, and particularly so in the region of the flaw, indicating that this spot was possibly being used as a notch or spoke-shave.

Artifact #470/471 (Plate 6.11b), is made out of fine grey chert and was found broken into two pieces within the same excavation unit. The piece is an oblanceolate biface that is 6 cm long, with a maximum width located just distal to the midpoint. The craftsmanship is good with moderate use wear on all edges, with maximum wear located on the proximal third of the point, probably related to hafting.

Oblanceolate projectile points are common in mid-Holocene assemblages of the western subarctic (Workman 1978: Plate 20, 30, 34, 37, and 44a; Clark 1993: Plate 11; Anderson 1988: Figure 80). Generally they have straight bases, are unstemmed (but are sometimes stemmed), and the widest part of the projectile is at, or distal, to the midpoint of the piece. They seem to be coeval with pentagonal "Pelly" (MacNeish 1964: Table 12) points. There association with notched points is less certain; Anderson (1988: Chapter 7) found that Oblanceolate examples in the Onion Portage site post-date notched points, while MacNeish (1964: Table 12) and Workman's (1978: Table 3) evidence indicates that the two types occur at the same time.

Lanceolate Biface Midsection (N=1): (Plate 6.11c)

Artifact #32 is the only example of this type and it was found while testing the site in 1990. The piece was made out of a fine chert with quartz inclusions. It is lanceolate in form but both the base and tip are missing. The quality of workmanship on this piece is exceptionally fine. There is very little use wear evident on the piece and most portions of the blade look unused leading me to believe that piece was broken during or shortly after a re-sharpening episode.

Lanceolate Biface Bases (N=2):

Artifact #808 (Plate 6.11d) is made out of a fine black quartzite and has a straight base and parallel lateral edges. The lateral edges give no hint as to whether they expand into an oblanceolate form (such as all other biface forms present at the site). Though the blade is missing it is very similar to Workman's (1978: Figure 40 e,f) Whitehorse and straight-based lanceolate type points. He ascribes these to a time period just prior to the White River Tephra fall. The edges of this piece appear to be completely unworn.

Artifact #473 (Plate 6.11e) is the base of what appears to be a very expediently fashioned oblanceolate biface. The biface was fashioned on a small flake or blade blank with very minor bifacial edge retouch, of which, the flake scars do not extend much further than about three millimetres into the body the point. The base is straight and the lateral edges expand distally to the point of breakage. Despite the expedient nature of this piece it was heavily used. In fact the edge wear on this piece is the most substantial of any artifact in the collection.

Biface Fragments (N=3):

The three biface fragments recovered at KdVa-8 are fragmentary remains whose form cannot be properly identified. However, all three pieces have evidence of use wear on the edges indicating that they were all part of complete, functioning tools prior to being broken and discarded.

End Scrapers (N=3):

Two of these implements have graver projections on the distal working edges. Artifact #546/525/540/534 (refitted) (Plate 6.12b) was formed on a large thick flake blank found in four fragments, likely because of thermally induced spalling (either by heat or frost). The proximal end of the piece was bifacially thinned (with three transverse blows originating from the right lateral edge), probably for the purpose of hafting.

Artifact #462 (Plate 6.12a) is made on a thin flake blank. Both are modified only on the distal end of the tool, and in both cases the knapper created a distinct projection on the end of the tool, which seems to have born the brunt of the use wear. In both cases the lateral edges have also been utilized without modification.

Artifact #682/612/593 (Plate 6.12c), is a combination tool for which I could find no comparative example. It is a typical triangular end scraper; however, the piece was modified with a blow, originating from the platform of the flake blank, removing the left lateral side of the scraper, upon which the knapper made a small spokeshave. Both the concavity and the distal end have moderate use wear.

Side and End Scrapers (N=6): (Plate 6.13)

Artifact #308 and 468 are thick triangular forms that are modified and worn on all lateral edges. Artifacts #461 and 463 are rectangular and have unifacial modification on all but the proximal margins. Both KdVa-8: 330 and 447/634/635 (heat or frost spalled) are rectangular in shape and are modified on the distal and one lateral margin. All of the side and end scrapers recovered from the BAC are quite similar to typical forms found in the Yukon and Alaska (Workman 1978: Plates 23a, b for examples).

End-of-Blade Scrapers (N=1): (Plate 6.14 a)

The one complete example of this type was formed on an elongate tabular chert blade. The blade blank is triangular in cross section and the scraping bit was modified creating a near 90° edge angle relative to the ventral face. The right lateral edge of the blade has been delicately retouched, probably to accentuate the naturally concave shape of that edge.

End-of-Blade Scraper Fragments (N=2): (Plate 6.14 b, c)

Two distal end-of-blade scraper fragments were recovered from the BAC, of which (#464) has unifacial modification on the left lateral edge as well as the distal and was broken in use or repair. Artifact #4 was broken by heat or frost spalling and has unifacial modification only on the distal end. Both are moderately worn from use.

Side Scrapers (N=6): (Plate 6.15)

This category includes all unifacial tools not covered under the above categories, and can generally be classified as tools where the working edge is manufactured on the longitudinal axis of the flake blank. Four of the side scrapers in the collection are made on large thick flake blanks. There is little evidence of shaping except for artifact #75 (Plate 6.15a), which has complete unifacial retouch of the right lateral edge and partial retouch of the distal end of the left lateral edge. The right edge is convex at the proximal end, but becomes relatively straight distally. The distal margins of the left and right lateral edges have been formed into a point. The entire edge (including unmodified edges) of this artifact has been significantly worn. The remaining two examples (#358 and 479) have been expediently fashioned on large flake blanks.

Side Scraper Fragments (N=2):

Two side scraper fragments were recovered from the BAC, both of which appear to have been manufactured on large flake blanks such as those mentioned above.

Double-Bitted End Scraper: (Plate 6.16)

The single example of this type (#328) is made on a thick dark grey chert flake blank. Unifacial retouch occurs on both proximal and dorsal ends of the artifact and these ends are very heavily worn. Though the lateral sides are worked there is little wear on the edges. The ventral face of the blank has been flaked, possibly indicating some sort of attempt to rejuvenate the working edges.

Spokeshaves (N=5): (Plate 6.17)

Spokeshaves are artifacts that have been unifacially retouched to form a concave working edge. They have also referred to as a type of side scraper (Workman 1978: 296 and 304). Four of the examples (#147, 168, 284 and 878) are made on middle stage reduction flakes, where one edge has been delicately retouched creating a gentle concave working edge. Both the size of the flake blanks and the moderate use wear indicate that these were used for precision work. Artifact #505 is constructed on a large primary flake and has a deep heavily worked concavity on the proximal portion of the left lateral edge. Unlike the others, this piece has evidence of very heavy use wear indicating its function was not analogous to the other examples in this component.

Beaked Uniface (N=1): (Plate 6.18)

Artifact #822 is an expedient tool formed on a split flake blank. The split in the flake occurs at the platform creating an angled projection. This projection was unifacially retouched. There is minor use wear on the piece.

Unidentifiable Uniface Fragments (N=3):

These pieces (#3, 592 and 746) are fragmentary but retain evidence of unifacial retouch. In all cases, the unifacial edges are worn.

Cobble Spalls (N=1): (Plate 6.19)

One rough quartzite cobble spall was recovered from the component. This piece has substantial wear on both the proximal and distal margins of the flake. It is similar to the example found in the Above Ash Component.

Blades (N=1): (Plate 6.20)

One blade, (#826/492/494) in three pieces, was recovered. The blade is made of brown siltstone and appears to have been struck from a core of a tabular raw material. There is very little use wear evident on the piece.

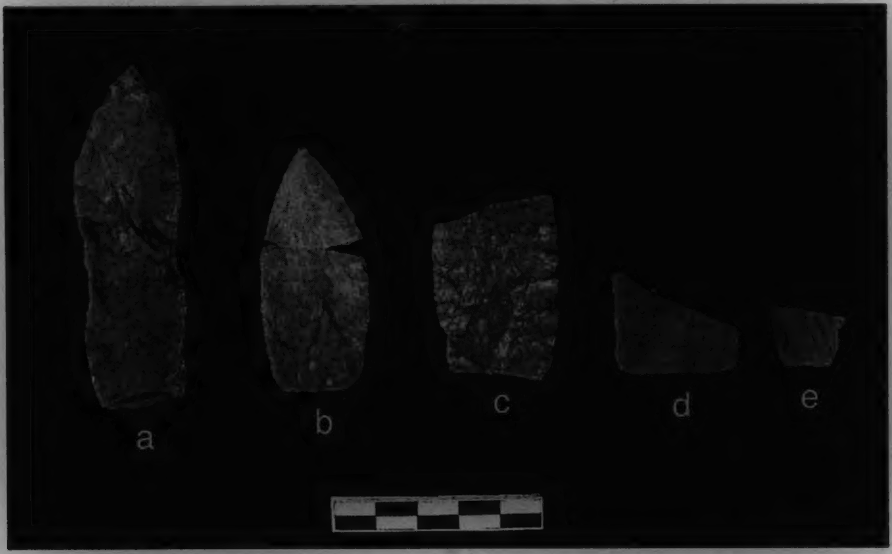


Plate 6.11: Lanceolate projectile points

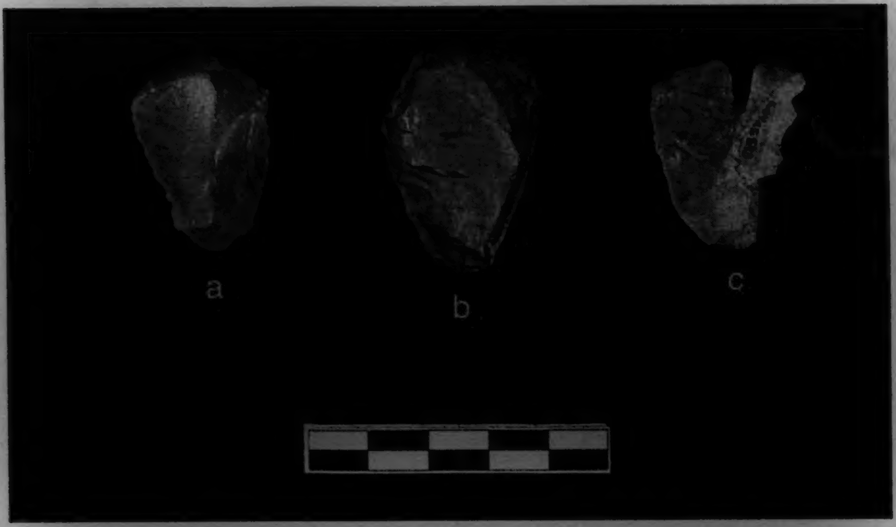


Plate 6.12: End scrapers

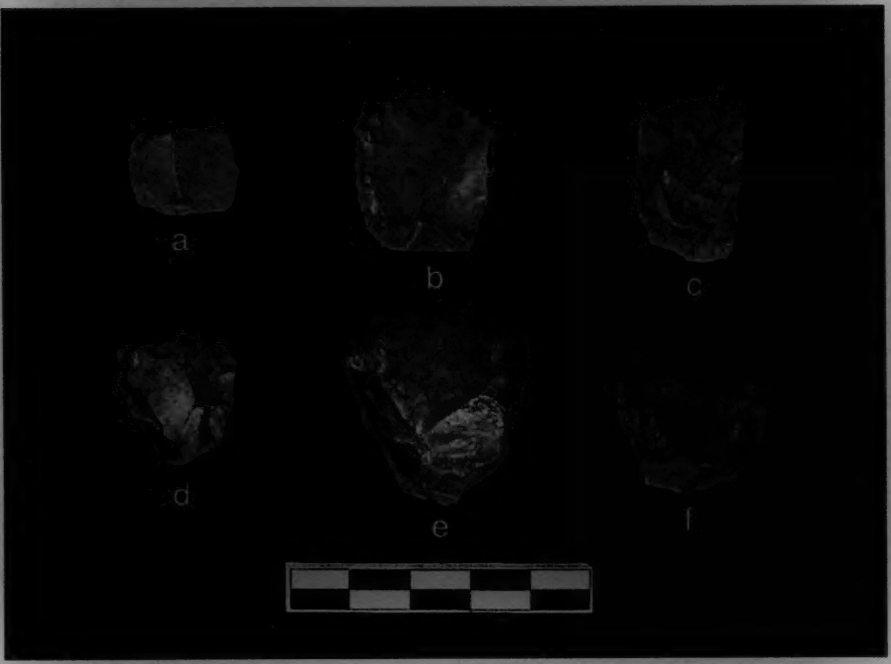


Plate 6.13: Side and end scrapers

Plate 6.14: End of blade scrapers

Plate 6.15: Side and end scrapers

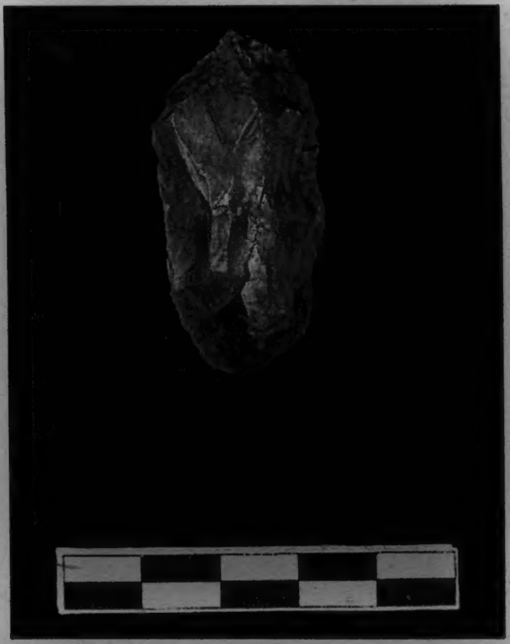


Plate 6.16: Double bitted end scraper

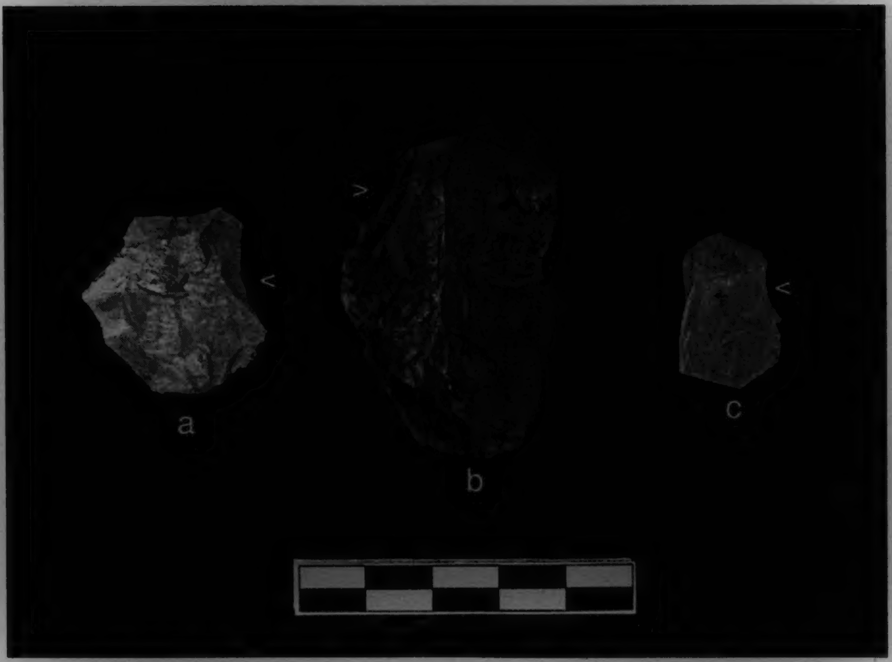


Plate 6.17: Spokeshaves. Arrows indicate notched portion

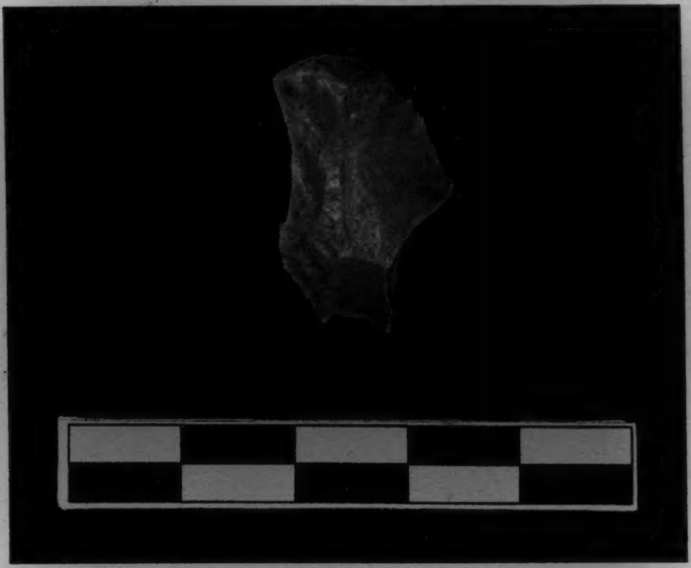


Plate 6.18: Beaked uniface

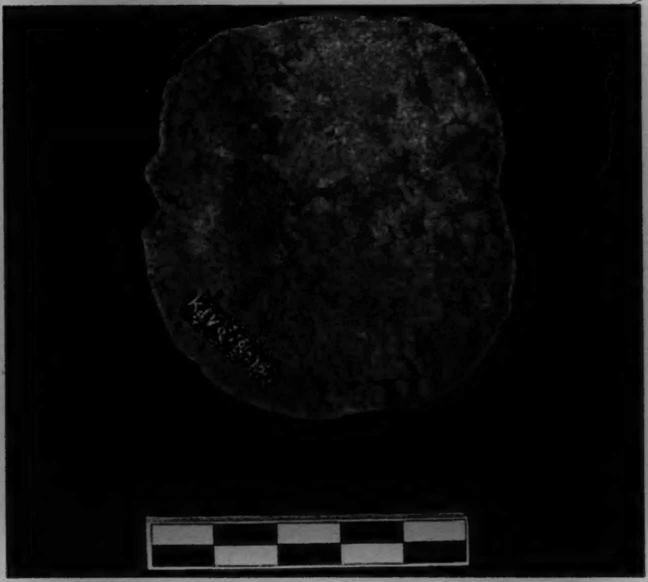


Plate 6.19: Cobble spall scraper

Plate 6.20: Blade

Faunal Collections

Above Ash Component

(N = 2775)

The majority of the faunal material recovered from excavations in the AAC, was burned and crushed. Faunal identifications were completed with the assistance of Shirley Harpham (archaeology technologist), using the zooarchaeological comparative collection housed in the Department of Anthropology at the University of Alberta. Ninety-six bone fragments were recovered that could be identified to species. These remains indicate that, beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), marten (*Martes americana*), snowshoe hare (*Lepus americanus*), moose (*Alces alces*), bear (*Ursus*), spruce grouse (*Dendragapus canadensis*), chicken, whitefish (*Coregonus clupeaforms*), and northern pike (*Esox lucius*) were all being utilized. The presence of a single chicken bone, an animal not native to the Yukon, indicates mixture of historic and late prehistoric period remains. Nonetheless, the majority of the archaeological features and artifacts recovered in excavation are of precontact antiquity therefore it is likely that the majority of the faunal remains are of similar antiquity and directly applicable to the interpretation of the Late Prehistoric occupation. Bone from medium- and large-sized mammals is most frequent in the AAC collection (Table 6.5), but it is highly degraded and is not identifiable; this situation is due to a variety of taphonomic factors.

Species	N	%
Beaver	28	1.0
Muskrat	33	1.2
Marten	1	0.0
Snowshoe Hare	8	0.3
Small Mammals	527	19.1
Bird / Rabbit	344	12.5
Spruce Grouse	2	0.1
Chicken	1	0.0
Bear	9	0.3
Moose	2	0.1
Medium / Large Mammal	1781	64.6
Pike	3	0.1
Whitefish	16	0.6
Fish	22	0.8
Total	2755	100.0

Table 6.5: Total frequency of faunal remains in Above Ash Component

Species	N	%
Muskrat	33	34.4
Beaver	28	29.2
Snowshoe Hare	8	8.3
Marten	1	1.0
Bear	9	9.4
Moose	2	2.1
Caribou	0	0.0
Whitefish	9	9.4
Northern Pike	3	3.1
White Sucker	0	0.0
Chicken	1	1.0
Spruce Grouse	2	2.1
Total	96	100.0

Table 6.6: NISP of species in Above Ash Component

Most of the faunal materials were reduced into a sort of bone gravel, in which most pieces were no larger than one to four centimetres for any given dimension. This may create a positive bias for the identification of smaller animal species because their skeletal elements are more likely to survive intact given the state of the overall collection, whereas the bones of larger animals tend to be reduced to an unidentifiable state. As well, local human groups used large animal bones as either a raw material for tool manufacture (McClellan 1975: 256), or were smashed and boiled to obtain grease (McClellan 1975: 215). Nonetheless, Number of Identifiable Specimens per taxon (NISP) is the most practical way to analyse a collection of this type (Lyman 1994: 100).

Looking at NISP, fur-bearing animals dominate the collections representing 72.9% of the identifiable species (Table 6.6). Of these, muskrat (34.4%) and beaver (29.2%) are the most abundant species, with snowshoe hare and marten representing a minor proportion of the sample. Large mammals, consisting of bear and moose, constitute 11.5% of the identifiable specimens. Fish species represent 12.5% of the sample, and contain whitefish (9.4%) and pike (3.1%). The preservation and recovery of fish bones in archaeological deposits is generally very poor owing to their small size and delicate skeletal structure (Lyman 1994: 435), so there is a chance that they are underrepresented in the sample. Bird remains are the smallest part of the sample representing 3.1% of animal species.

Below Ash Component
(N = 1227)

Again, most bone recovered from this layer (76.5%) appears to have come from medium to large mammals (Table 6.7). As in the AAC, this creates some interpretational difficulties, but again I will rely on NISP as a way to understand the actual abundance of animals used by past peoples. Again fur-bearing animals are most abundant in the assemblage, representing 55.7% of the sample (Table 6.8). At 44.2% beaver is the most abundant of these. This varies from what was found in the AAC in that the use of muskrat is a very minor by comparison, accounting for 11.5% of the assemblage, indicating that game selection patterns were different before 1250 B.P. Hare and marten appear to be absent in the BAC collections, though it is worth noting that bird and rabbit bone are

Species	N	%
Beaver	27	2.3
Muskrat	6	0.5
Bird / Rabbit	46	3.8
Small Mammal	181	14.8
Moose	3	0.2
Bear	1	0.1
Caribou	1	0.1
Medium / Large Mammal	938	76.5
White Sucker	2	0.2
Whitefish	13	1.1
Pike	3	0.2
Fish	7	0.6
Total	1227	100.0

Table 6.7: Total frequency of faunal remains in Below Ash Component

Species	N	%
Beaver	23	44.2
Muskrat	6	11.5
Marten	0	0.0
Snowshoe Hare	0	0.0
Moose	3	5.8
Bear	1	1.9
Caribou	1	1.9
Spruce Grouse	0	0.0
Whitefish	13	25.0
Northern Pike	3	5.8
White Sucker	2	3.8
Total	52	100.0

Table 6.8: NISP of species in Below Ash Component

difficult to tell apart unless an identifiable fragment is recovered. Thus some of the 46 bones in the "bird / rabbit" category (Table 6.7) may come from hare.

Large mammals are again represented by moose (5.8%) and bear (1.9%) with the additional occurrence of a single specimen of caribou (1.9%). Fish comprise a substantial proportion of the faunal remains in the BAC (34.6%) of which whitefish dominates (25%); white sucker (3.8%) and pike (5.8%) are a minor component. The abundance of whitefish strongly suggests a fall season occupation of KdVa-8 because this species spawns in the adjacent creek at that time of year. Identifiable bird bones were absent in the sample.

Chapter Seven: Spatial Distribution of Archaeological Remains

Distribution of Features

Historic Component:

Though I wish to focus on the results of the excavations, there are a number of notable historic features at the site of KdVa-8, the most prominent being Tommy McGinty's cabin, which sits just south of the excavations and was constructed in the 1960s (Gotthardt 1992). The remains of two brush structures were discovered during survey in 1990 at eastern most portion of the site, over looking the small bay. Dan Van Bibber (cf., Gotthardt 1992) identified these as children's brush camps. These structures were not tested or excavated during the 2000 fieldwork.

Above Ash Component:

Hearths

Three possible hearth features were identified in the AAC (Figure 7.1). During the 1990 survey a surficial concentration of fire-cracked rock (FCR) and burned bone was identified as a hearth feature, in what became unit N0W16. Provenience information regarding the bone from this unit has been lost since the 1991 excavations, but floor plans and field notes do confirm the presence of these remains. A second concentration of burned bone and FCR in units S1W17, S1W18 and S2W17, is now interpreted as a hearth. The latter two hearths are in close proximity and may be part of a single living area. A hearth feature at the west end of the excavations is inferred from a large concentration of FCR and burned bone in and around units N0W25 and N1W25 (Plate 7.1).

KdVa-8
N0W25
15cmBD (Base of Humus)
Hearth Feature (FCR)
2000

Plate 7.1: Hearth feature in Above Ash Component

Post Holes

An oval shaped column of silt extending from the top of the White River Tephra to the top of the underlying sandy silts is interpreted to be the remnant of a post-hole. No artefacts aiding in the identification of the feature were uncovered in clear association with the hole. The hole appears to have been dug into the ground at about a sixty-to-seventy degree angle relative to the surface.

Below Ash Component:

Hearths

Defining hearth features in the BAC was difficult because of a broad smear of charcoal evident in all units. Similar charcoal deposits are not uncommon in southern Yukon (Johnson and Raup 1964: 114) pre-White River Tephra contexts. Though the quantity of burned bone recovered from the BAC tempts me to associate this charcoal with cultural activities, its generalized distribution suggests it was deposited by a natural event such as a forest fire. However, there were some areas of the excavation where the charcoal seemed to be particularly concentrated (Figure 7.2 B-E) and may be cultural. Adding to the problem was the ambiguous nature of the FCR in the Below Ash Component. While there was a considerable amount of burned rock, few of these exhibited the thermal breakage patterns characteristic of the AAC examples. It is possible that burned rock in the BAC is related to a natural rather than cultural event; this, in combination with the near surface presence of cobbles from the underlying natural layer, made me very cautious when identifying cobble features below the WRT. The hearth feature labelled "A" (Figure 7.2) was identified by concentrations of charcoal and burned faunal remains. As well, the sediments associated with the feature were bright red indicating heat induced oxidation (Gotthardt 1992). A second hearth is signified by a concentration of burned bone in unit N0W25 (Figure 7.4), in association with a significant concentration of charcoal. There was no discolouration of sediments associated with the latter feature.

Depressions

Two depressions, one in S1W18 and another in N0W21 (Figure 7.2), may be related to cultural activities at the site. In both cases the depressions appear to have been dug through the silt layer to the contact with the cobble layer. There were no cultural materials clearly associated with these pits, possibly indicating that the pits themselves are non-cultural. Nonetheless, they represent an anomaly in the natural land surface possibility due to human activities.

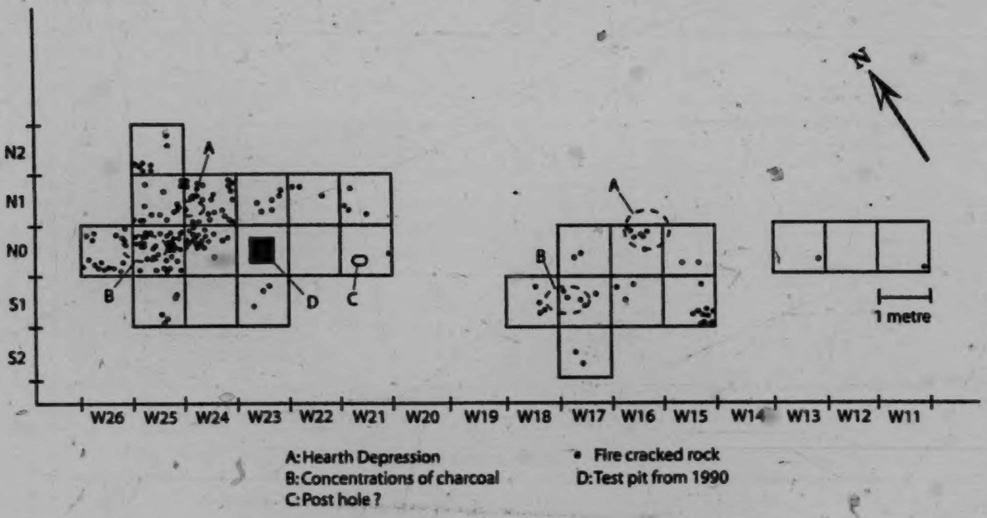

N2
N1
N0
S1
S2
W26 W25 W24 W23 W22 W21 W20 W19 W18 W17 W16 W15 W14 W13 W12 W11
A
B
C
D
N
1 metre
A: Hearth Depression
B: Concentrations of charcoal
C: Post hole ?
• Fire cracked rock
D: Test pit from 1990

Figure 7.1: Distribution of features in Above Ash Component

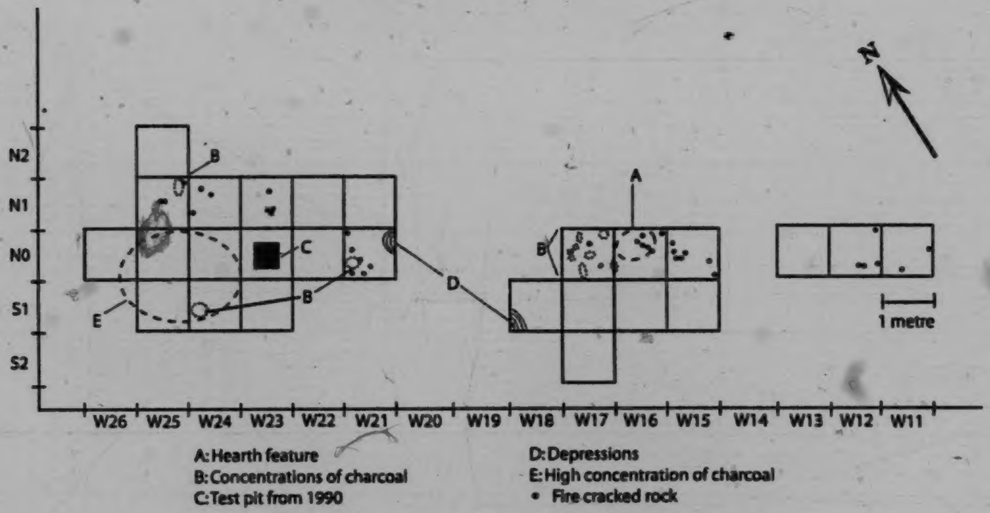

N2
N1
N0
S1
S2
W26 W25 W24 W23 W22 W21 W20 W19 W18 W17 W16 W15 W14 W13 W12 W11
A
B
C
D
E
N
1 metre
A: Hearth feature
B: Concentrations of charcoal
C: Test pit from 1990
D: Depressions
E: High concentration of charcoal
• Fire cracked rock

Figure 7.2: Distribution of features in Below Ash Component

Distribution of Faunal Remains

Above Ash Component

Figure 7.3 outlines the distribution of faunal remains in the AAC. All the provenience information for faunal remains recovered in the 1991 excavation has been lost. Nonetheless, reviewing the field notes has corroborated a significant concentration of burned bone in N0W25, though the abundance presented in Figure 7.3 may not be accurate. Thus, two concentrations of faunal material are apparent and a third is presumed based on the field notes. The first is around unit N0W25 and the second is around unit S1W17. The third concentration, not pictured in Figure 7.3, is in unit N0W16. There are no significant inter-unit variations in the distribution of the NISP of individual species.

Below Ash Component

Figure 7.4 outlines the distribution of faunal remains in the BAC. Again, I am uncertain about the distribution of faunal remains from excavations in 1991. Examination of the field notes shows that faunal materials were concentrated in and around the hearth feature in unit N0W16. Faunal materials from the 2000 excavations were concentrated in unit N0W25, with only minor amounts appearing in other areas. No significant inter-unit variations in species distribution are evidenced with the exception of fish remains. Numerically, fish remains are as abundant in N0W11 as they are in the entire western end of the site.

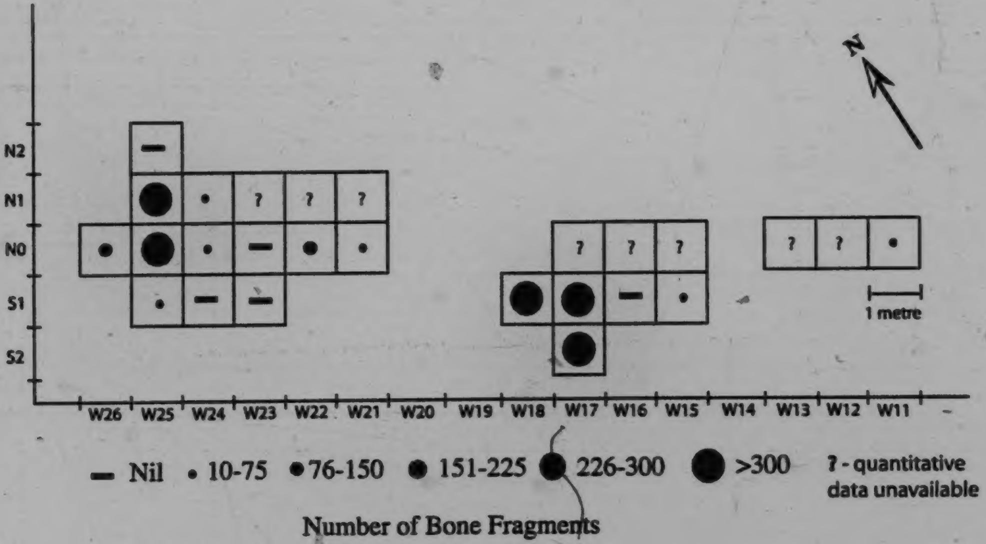

N
N2
N1
N0
S1
S2
W26
W25
W24
W23
W22
W21
W20
W19
W18
W17
W16
W15
W14
W13
W12
W11
?
1 metre
Nil
10-75
76-150
151-225
226-300
>300
? - quantitative data unavailable
Number of Bone Fragments

Figure 7.3: Distribution of faunal remains in Above Ash Component

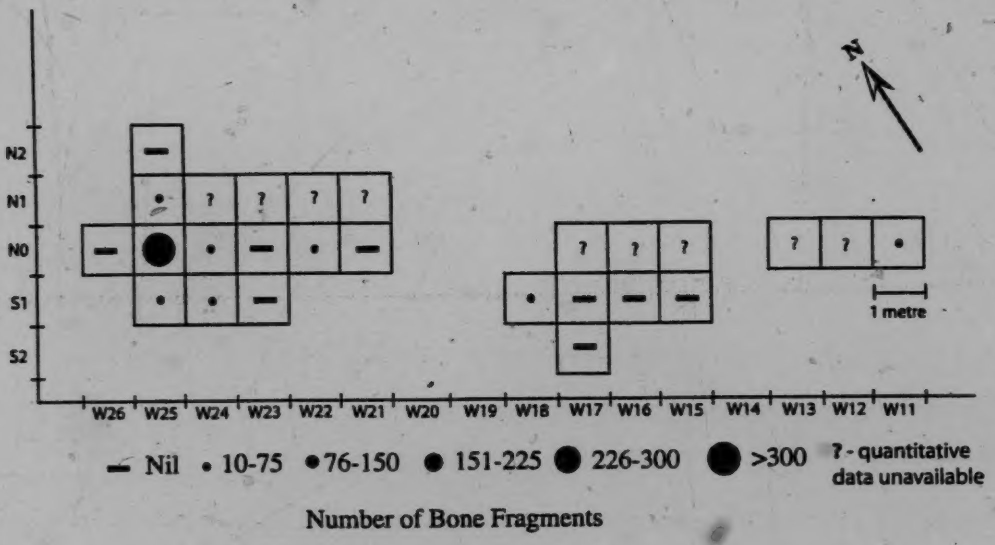

N
N2
N1
N0
S1
S2
W26
W25
W24
W23
W22
W21
W20
W19
W18
W17
W16
W15
W14
W13
W12
W11
1 metre
Nil
10-75
76-150
151-225
226-300
>300
? - quantitative data unavailable
Number of Bone Fragments

Figure 7.4: Distribution of faunal material in Below Ash Component

Distribution of Artifacts

Above Ash Component

Artifacts in the AAC are concentrated around hearth features (Figure 7.5) suggesting that activities were taking place within a shelter of some sort. The distribution of artefacts in units S1W15 and S1W16 occurs adjacent to the inferred hearth features. This is different than the artifact distribution at the western end of the excavation, which occurs *in* the associated hearth feature. I cannot find a reasonable cultural mechanism that would explain the latter observations, though I personally believe that western hearth and associated artifacts may have been subject to more post-depositional disturbance (both cultural and natural) than the other hearths, possibly suggesting it is older. This is speculation. Coincidentally, artifact concentrations in the AAC correspond with those in the BAC.

Below Ash Component

The majority of artifacts in the BAC are associated with the previously discussed hearth features and bone concentrations (Figure 7.6). At the western end of the site there appears to be two main centres, one being associated with the charcoal and bone concentration around N0W25, and a second concentration in unit N2W25. At the east end of the excavations, artifacts are associated with the hearth feature in unit N0W16. As was the case for the western hearth in the AAC, artifacts in this component are within the interpreted hearth features.

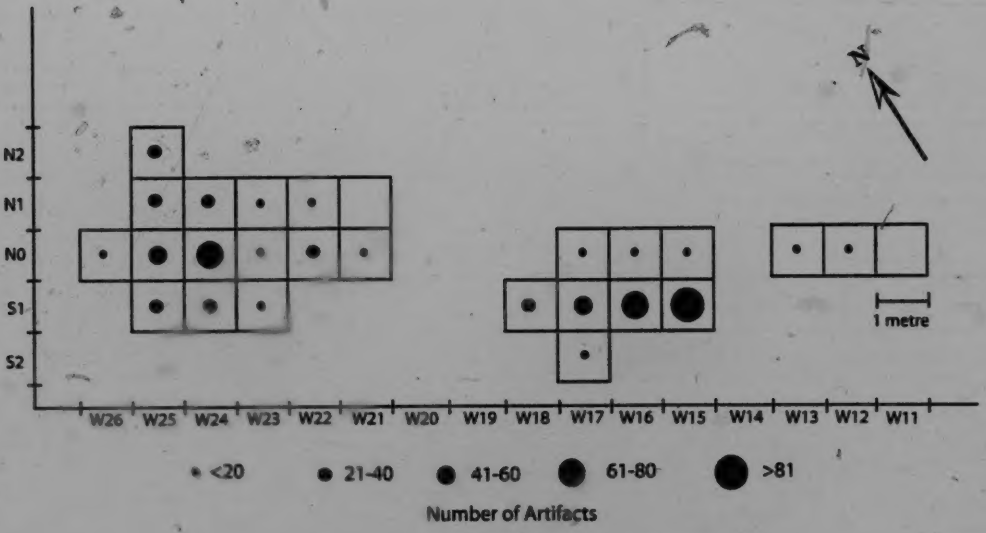

N
N2
N1
N0
S1
S2
W26
W25
W24
W23
W22
W21
W20
W19
W18
W17
W16
W15
W14
W13
W12
W11
1 metre
• <20
● 21-40
● 41-60
● 61-80
● >81
Number of Artifacts

Figure 7.5: Distribution of artifacts in Above Ash Component

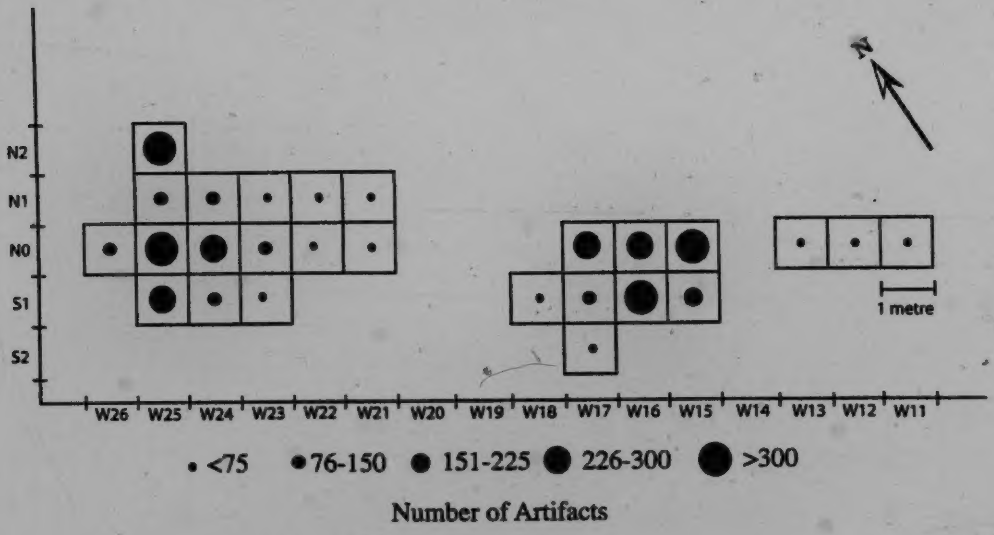


Figure 7.6: Distribution of artifacts in Below Ash Component

Distribution of Formed Tools

Above Ash Component

The distribution of formed tools (Figure 7.7) mimics the overall distribution of artifacts in the AAC. There is a spatial grouping of certain tool types suggesting the presence of discrete activity areas. Firstly, both projectile points and copper blanks were grouped in close association around unit S1W16. I have suggested earlier that I was uncertain as to whether or not these were projectile point blanks or awls. Their close association with other projectile points may indicate the former. Another notable association of tools is in the western hearth, where all the stone wedges are grouped together. Associated with these are tabular bifaces and core shatter. The differing artifact composition associated with each hearth suggests that they were distinct from one another. I have mentioned that the hearth in N0W16 was noticeable from the ground surface, suggesting it is more recent. Further more, this hearth is associated with the copper technology suggesting that it too is a more recent phenomenon at the site;

although it is not unlikely that people living in different tents, during a single occupation, could be responsible for equally distinct artifact clusters.

Below Ash Component

The distribution of formed tools in the BAC are centred on the hearth at the western end of the excavations, particularly in the southern halves of N0W25 / N0W24 and the northern halves of S1W25 / S1W24. Units N2W25 and N0W16, areas with high concentrations of artifacts, do not have correspondingly high concentrations of formed tools. There are two notable tool distributions (Figure 7.8). Firstly, all the unifacial tools appear in the western portions of the excavations, and secondly, all the cores were found in units N0W24 and S1W23. In regard to the latter observation, it is noted that core fragments do seem to be distributed throughout the excavations; thus core reduction activities were probably taking place throughout the site. There is no clear tool concentration of tools associated with the hearth in N0W16.

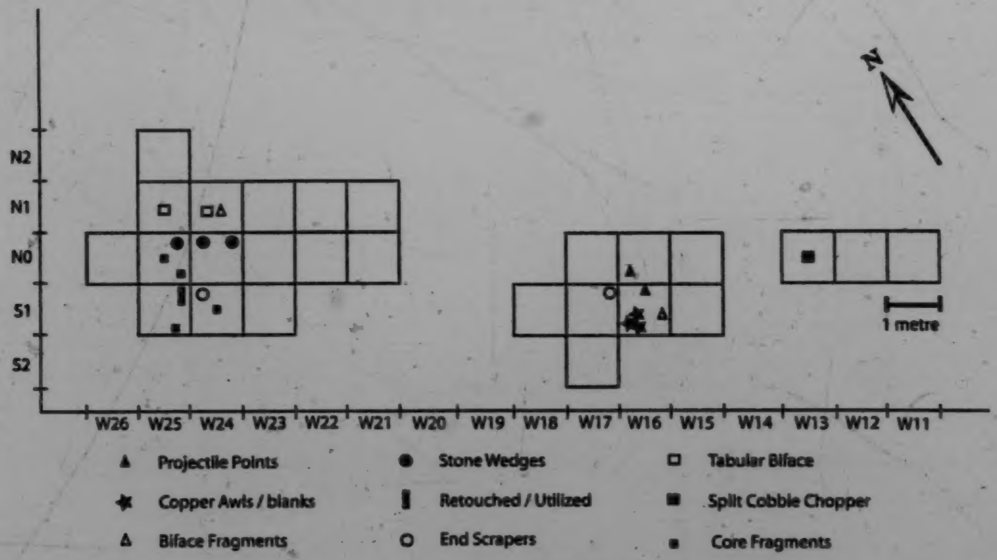

N
N2
N1
N0
S1
S2
W26
W25
W24
W23
W22
W21
W20
W19
W18
W17
W16
W15
W14
W13
W12
W11
1 metre
▲ Projectile Points
● Stone Wedges
□ Tabular Biface
✱ Copper Awls / blanks
▮ Retouched / Utilized
■ Split Cobble Chopper
△ Biface Fragments
○ End Scrapers
▪ Core Fragments

Figure 7.7: Distribution of formed tools in Above Ash Component

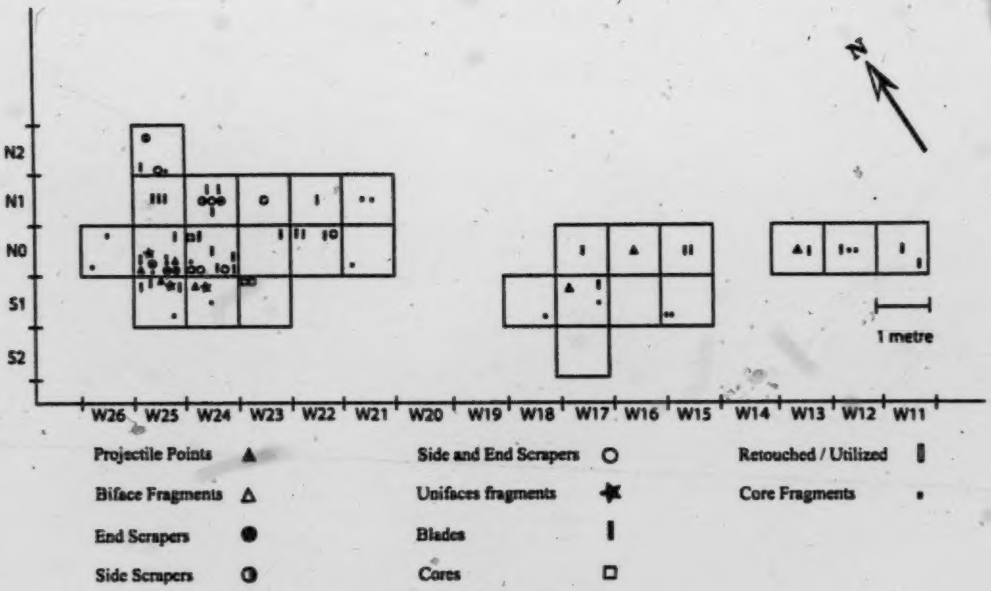

N
N2
N1
N0
S1
S2
1 metre
W26
W25
W24
W23
W22
W21
W20
W19
W18
W17
W16
W15
W14
W13
W12
W11
Projectile Points ▲
Biface Fragments △
End Scrapers ●
Side Scrapers ◑
Side and End Scrapers ○
Unifaces fragments ✱
Blades ❘
Cores □
Retouched / Utilized ▮
Core Fragments •

Figure 7.8: Distribution of formed tools in Below Ash Component

Discussion of Spatial Distribution Data

Spatial analysis of the features and archaeological collections at the site has brought to light a number of observations. In both the above and below ash components, artifacts tend to cluster around hearth features, though the distribution of formed tools from the two components contrast. In the latter case, there are two concentrations of artifacts with corresponding associations of formed tools. In the BAC, the distribution of tools is not conducive to interpretation of area specific activities. While tools generally cluster around the hearth feature at the western end of the excavations, the homogenous association of various tool types would suggest that they were deposited during multiple rather than single occupations. Had faunal material associated with the eastern hearth been available for study I may have been able to provide further discussion on the differing nature of earlier versus later occupations. As it stands most of the relevant faunal materials and diagnostic tools should be attributed to an occupation(s) related to the western hearth. Though this hearth is not dated, a date of 1437±41 B.P., is derived from unburned faunal material in N0W22. The dated faunal material is not burned and therefore is not directly attributable to the hearth feature, though I would argue the association of the two is probable. The eastern hearth is older, dated to 3600±200 B.P., (Gotthardt 1992), but the nature of the site stratigraphy limits any possible demarcation of this occupation from more recent ones. Both of the dates for the BAC fall within the temporal framework of the Taye Lake phase (as defined by Workman, 1978) so I will suggest that the need for interpretational uncertainty is minimal.

Chapter Eight: Discussion and Interpretations

The Place of KdVa-8 in the Prehistory of the Interior Northwest

Aishihik Phase

Based on artifacts recovered from the Above Ash Component, KdVa-8 is highly similar to post White River Tephra (WRT) archaeological assemblages from the southern Yukon (Workman 1978: 367) that are now commonly considered to belong to the Late Prehistoric period (Greer and Blanc 1983: 33; Hare 1995: 125). Native copper tools are a diagnostic attribute of the collection. Stone wedges, cobble spalls, tabular bifaces, crude end scrapers, a straight-based lanceolate projectile, a probable Kavik point (Campbell 1968) and a pebble tool industry characterize the lithic collection. An edge-ground artifact might be a whetstone for sharpening bone or copper artifacts (Morlan 1973: 270), although coarse striations on the artifact may indicate stone grinding.

Le Blanc (1984: 432-436) has acknowledged broad similarities in Late Prehistoric period archaeological collections from northwest North America citing such characteristics as copper tools, tanged copper points, barbed bone and antler points, Kavik points, tabular bifaces, a birch bark industry, stone grinding tools and similarities in the coarse stone industry. He was unable to elaborate on the spatial variability in technology because regional collections are meagre in comparison with those from the Rat Indian Creek (MjVg-1) and Klo-kut (MjVl-1) sites. It was suggested that Late Prehistoric components in the western subarctic might be thought of as a technocomplex (Le Blanc 1984: 434) that lasted from 1300 B.P., to contact with Europeans.

The small sample size and lack of preserved osseous tools in the KdVa-8 collection limits comparisons with other Late Prehistoric components although technological analogies on the level of Le Blanc's (ibid.) suggested technocomplex are present. In the southern Yukon, Aishihik phase (Workman 1978: 366) collections are virtually identical to those from KdVa-8 though the latter lacks evidence of an osseous tool industry; I believe that collections from KdVa-8 are consistent with an Aishihik phase occupation of the Late Prehistoric period.

Workman (1978: 367) has suggested that there is direct technological continuity between the Taye Lake and Aishihik phases, which he groups into the Northern Archaic Tradition. He cites as evidence the persistence of cobble spall scrapers, tabular bifaces, straight-based lanceolate points, notched points and stone wedges before and after the fall of the WRT. At KdVa-8, only limited continuity from earlier times is suggested by the presence of cobble spalls and a single straight-based lanceolate projectile point base, but artifacts such as stone wedges, tabular bifaces and native copper implements are only present in the AAC. Le Blanc (1984: 439) has argued that the Klo-kut Phase technology is consistent with an *in situ* development of from the earlier Old Chief Phase, but states that "...there are considerable differences between this archaeological complex [i.e., Old Chief] and the succeeding post-1200 B.P., materials in the northwest" (ibid.).

At Lake Minchumina in central Alaska, the Spruce Gum phase represents a radical "change in material culture from that seen in the Minchumina tradition" (Holmes 1986: 158) as is indicated by the replacement of a microblade technology with Late Prehistoric type artifacts. A similarly distinct transition has been noted at Dixthada (central Alaska, Shinkwin 1979: 170). It has been noted (Le Blanc 1984: 439-440) that the archaeological complexes on either side of the 1200-1300 B.P., boundary in the Yukon show more continuity than they do in the central Alaskan records. As such, technological changes in the former region are probably due to internal cultural developments while the latter region *might* have experienced a more profound transformation of technology and/or population.

The discovery of preserved organic hunting technology at alpine ice patches in the Southern Lakes District of the Yukon (Kuzyk et al. 1999) has provided further insight on the nature of the Late Prehistoric transition. Preliminary descriptions of radiocarbon dated artifacts indicate that bow and arrow technology arrived in the region after 1300 B.P., and likely replaced the atlatl (a form of sling propelled lance or javelin) (Hare et al. 2001). It is uncertain to what degree the appearance of this weapon can be correlated with other technological changes in the region. It has been observed that the shafts of early atlatls were carved, but that arrow shafts seemed to have been ground or sanded (Hare et al. 2001); certainly this would have required a ground stone tool such as the shaft smoother discussed by Le Blanc (1984: 289-290, Plate 37). Hare et al. (2001) have also observed that all post 1300 B.P., (radiocarbon years) projectile points are manufactured using osseous materials where earlier projectiles were made from chipped stone with only limited examples of bone types.

I would speculate that the bow and arrow, the increased use of osseous implements and the appearance of native copper implements represent a significant departure from earlier technologies that might signify tangible external influences. However, I believe that the Aishihik phase occupation of KdVa-8 represents an *in situ* development from earlier Taye Lake phase populations. Pre-contact settlement patterns before and after the fall of the WRT are quite similar at Tatlmain Lake (Gotthardt 1992: 62). As well, similarities in trade items, raw material types and the inferred subsistence economy (discussed below) for the two components suggest that the changes in technology were not accompanied by dramatic changes in economy that might be expected if a population replacement had occurred. However, the technological distinctions observed at KdVa-8 are probably best understood as a Late Prehistoric technocomplex (Le Blanc 1984: 434), than as a phase within a pan-Yukon and Alaska archaeological tradition such as the Northern Archaic.

Taye Lake Phase: Northern Archaic or Northwest Microblade Tradition?

Analysis and classification of artifacts from the Below Ash Component at KdVa-8, indicate a strong typological affinity with the Taye Lake phase (either of the Northwest Microblade tradition or the Northern Archaic Tradition) of the southern Yukon (MacNeish 1964; Workman 1978). Straight-based lanceolate and oblanceolate projectile points, expedient flake tools, informal blades and blade tools, cobble spall scrapers, concave spokeshaves, and a variety of unifacial scrapers with single or multiple working edges characterize the assemblage. Some end scrapers have graver projections on the distal end (the beaked uniface [p. 67] may be a variation on this theme) and one example has a concave spokeshave along the lateral edge. What is most striking about the BAC component is the volume of whole and fragmentary unifacial tools, which comprise 37% of the formed tool assemblage. In this respect, the BAC compares favourably with Workman's (1978: 379) definition of the Taye Lake phase, as it does with the Portage and Itkillik complexes of Onion Portage (Anderson 1988: 78-81, 125-126). KdVa-8 lacks notched points and large semi-lunar bifaces that are often associated with mid- to late-Holocene components (Clark 1992: 76-77). This may be an anomaly of site function or sample size, though Gotthardt (1992: 60) has observed that these types are absent from all sites at Tatlmain Lake. One blade and some blade tools are present in the BAC, although these artifacts are described as being "usually absent" (Clark 1992: Table 1) in the NAt. Workman (1978: 380) describes parallel-sided flake blades struck from regular flake cores, which may or may not actually be blades as I have described them here (comparative illustrations are not provided in Workman). Generally, the similarities to Taye Lake assemblages are strong and I will propose that the Below Ash Component is consistent with a Taye Lake phase occupation.

For Workman (1978: 414), Taye Lake is a phase of the Northern Archaic Tradition that replaces the earlier Little Arm phase, presumably by an immigrant population and technology from outside the region. However, current discourse has questioned the validity of the NAt as an interpretational construct for mid-Holocene components (Clark 1987: 161; Clark and Gotthardt 1999: 175; Clark and Morlan 1982: 85; Le Blanc 1994: 205-207; Morrison 1987: 67). Theories promoting an archaic type subsistence economy (as defined in, Willey and Phillips 1958: 104) in the interior northwest have been repudiated (see earlier discussion on page 27) and I will not belabour this point (Anderson 1988: 87; Morrison 1987: 64; Workman 1978: 428). The hypothetical replacement of an early population after 6000 B.P., has also been contested (Clark 1992: 79; Clark and Morlan 1982:84-85; Morrison 1987: 65; Wright 1995: 388) and supplanted by the notion that many of underlying culture-historical discontinuities that are documented throughout the Holocene are a "product of technological diffusion and temporal trends" (Wright 1995: 387).

However, the use of the NAt continues to be a source of confusion in the archaeological literature. At the root of the issue is the individual or combined typological value of notched points and microblades when used for creating culture-historical classifications on the scale of an archaeological tradition. The NAt, as defined by Anderson (1968, 1988), post-dates 6000 B.P., and is characterized by the presence of notched points and the absence of microblades. The body of evidence that opposes this definition has been building for some time. Archaeological components that contain both microblades and notched points, such as RkIh-36 (Clark and Clark 1993), MMK-1 (Holmes 1986), Tuktu (Campbell 1961), Healy Lake Village (Cook 1975) and Dixthada (Shinkwin 1979) are not uncommon in central Alaska. Morrison (1987: 66) has stated that Middle Prehistoric period of the Mackenzie Valley is characterized by the presence of both notched points and microblades and rejects the use of the Northern Archaic Tradition in this area.

Evidence of archaeological components that contain both notched points and microblades are poorly documented in the southern Yukon (Clark and Gotthardt 1999: 170), but a recent review of dated sites suggests that the two technologies might have existed contemporaneously (Hare and Hammer 1997). For example, the Little Arm (JiVr-1) site provides convincing evidence of such an assemblage, containing a sizeable microblade component associated with notched points in a layer of red/brown soil (level 4/5) that is dated to 1270±140 B.C., (G.S.C.-126, MacNeish 1964). Two microblades and a single core fragment were recovered in a Taye Lake layer stratigraphically above a level dated to 2900±130 B.P., (G.S.C.-940, Workman 1978) at the Chimi site (JjVi-7). In the Rock River region of the northeastern Yukon, an early association of notched points and microblades at MfVa-9 is dated to 7580±420 B.P., (S-2013, Gotthardt 1990), and a late date for a minor microblade component at MfVa-14 is dated to 1870±180 B.P., (S-2272, Gotthardt 1990). The microblade production station at Kelly Creek (KbTx-2) is dated to 1340±360 B.P., (S-347, Clark and Gotthardt 1999). Although some of these dates may be problematic, the temporal, stratigraphic and possibly the cultural association of the two technologies may yet be a distinct possibility.

However, the term 'Northern Archaic' continues to be used when microblades are absent from a site. Its use in this context is more confused than it is descriptive as the term carries with it significant theoretical baggage. Clark and Gotthardt (1999: 171) have stated that:

> In some respects the Northern Archaic may better be considered to be a horizon, albeit a very broad one, the horizon marker being the appearance of notched points which are free to associate (or not) with microblades available for adoption from coeval Denali peoples.

The use of the Northwest Microblade tradition, as it is discussed in Morrison (1987) and Le Blanc (1994), better fits the regional data set and provides a much more useful interpretational device for Yukon archaeology. Though MacNeish (1964) may have been guilty of creating loosely based culture histories, his overall conception of the NWMt was not without foundation. Using the NWMt allows for the independent association of microblade technology (that has a long history of use) with blades, burins, and a variety of projectile point styles through time, treating the appearance of new artifact styles (such as notched points) as horizon markers. As well the use of the concept does not become invalid when microblades are absent from a site, as long as other aspects of the technology are present. For this reason, the Taye Lake phase component at KdVa-8 will be classified within the interpretational framework of the Northwest Microblade tradition. At this point the absence of microblades at KdVa-8 will not be construed as a horizon marker, an artifact of site-specific land use or as technological discontinuity from earlier times. The site's assemblage is consistent with temporal technological trends in the central and southern Yukon and is adequately understood at the phase level.

Land Use

Settlement Patterns

Legros (1985: 41) has suggested that Tutchone people chose to inhabit localities on a lake that were close to prime fishing sites such as narrows, where nets could be employed, or creeks, where a trap could be built to harvest spawning fish. Gotthardt (1992: 62) has observed that the regular habitation of Tatlmain Lake probably began during the Taye Lake phase, though radiocarbon dates are only available from KdVa-8 and typological assessments of most pre-WRT sites are of limited value. However, as was predicted using documented Northern Tutchone settlement data (Legros 1981), sites seem to be concentrated around the western lake narrows (Figure 5.1, p. 31[only KdTx-4 and KdVa-10 contain pre-Taye Lake components]), and the most substantial archaeological remains were recovered from the traditional fish-trapping site at KdVa-8 (Gotthardt 1992: 62). A similar archaeological site distribution was observed at the Frenchman-Tatchun Lakes, central Yukon, though the typological evaluation of below ash components was also of limited value (Clark and Gotthardt 1997: 100). Late Prehistoric components were the most commonly identified site type. Of the eighteen sub-ash components that were discovered, five contained microblades and two had notched points; both were found at KtBx-13 (Frenchman Hill, ibid.: 120). Current data suggest that precontact lake use that is similar to the Tutchone settlement patterns, is a phenomenon that is more visible during the Late Prehistoric (due to the stratigraphic relation to the WRT), although other researchers (Clark and Gotthardt 1997: 120-121; Gotthardt 1992: 60-61) have speculated that it was likely to be similar during the Taye Lake phase and possibly during earlier phases of the NWMt. Future research may be able to comment on earlier occupations at Tatlmain Lake.

Archaeological Subsistence Economy

Northern Tutchone oral traditions and historic information (e.g., Legros 1981; Gotthardt 1987, 1992) that provide reference to fishing lakes generally suggest that they were used during the fall and winter. The seasonal resource base consisted of lake fish that were either trapped in creek beds while spawning in the fall, or harvested from below the ice using hooks or nets in the winter. Furbearers are plentiful at all times of the year but were extensively exploited during the winter. Faunal evidence collected from KdVa-8 compares favourably with this pattern of seasonal economy. Faunal collections from the Above and Below Ash components can be characterized as:

1. Being composed primarily of fur bearing mammals, of which beaver and muskrat are the main components.
2. Having a secondary component of fish, composed primarily of whitefish (though in the AAC fish is second only by a small margin).
3. Having only minor components of large mammal species, composed primarily of bear or moose.

I should acknowledge that these animal species are available on a year round basis and that seasonality cannot be implied strictly by their presence in the archaeological collection. The practice of drying and storing food, such as fish, could lead to occupations of a site that do not correspond with the seasonal availability of its resources (Le Blanc, personal communication 2002). As well, human choice can, and does, dictate the seasonal use of these resources. For example, summary ethnographic information from the eastern subarctic indicate that lake fisheries were more prevalent during the summer months (Rogers and Smith 1981: 135-137), though a similar inclination for hunting beaver and trapping fur during the winter is observed (ibid.: 133). During the summer, overland travel was restricted by vast expanses of muskeg and lakes, thus there was a tendency for people to remain at lakes and harvest less mobile prey (Rogers and Smith 1981: 135). Mobility was increased during the winter when lakes and rivers were frozen, at which time people exploited mobile large game species.

However, I believe that the faunal data are indicative of a winter season occupation that is analogous to Tutchone Athapaskan land use (Legros 1981). For example, the species represented in the sample are accessible to humans during the fall and winter, and though these are not the only subsistence options, they are representative of the few concentrated and predictable sources of food available during that season (Legros 1981: 630-650). As well, the seasonal abundance of salmon and caribou in adjacent, and assessable, localities reduce the likelihood of a significant human occupation at Tatlmain Lake outside of the winter season. I will qualify this statement by noting that salmon and caribou resources are available within an eighty-kilometre radius of Tatlmain Lake during the summer season.

Land Use Through Time

To state simply that the implicit seasonality of the AAC and BAC occupations is similar belies the subtle differences that are evident in the faunal collections. Although the sample size is small, it appears that game selection patterns were different before the fall of the WRT. This may indicate a change in the economy of the site's occupants. Legros (1981) and Ives (1990) have argued that ecology and season dictated when resources were available on the landscape, but it was social organization that influenced how and why people used those resources. In attempting to apply this idea to archaeology, Ives has stated that: "many archaeologists… have harboured the suspicion that the ideological and symbolic qualities of aspects of culture such as kinship and polity render them ephemeral insofar as archaeological records are concerned" (1990: 5), but suggests that focusing on the empirical attributes of culture may allow for some interpretational insight. Legros (1985) has suggested that Tutchone people who owned lake resources were motivated to intensively exploit salmon resources, in the summer, and lake resources, in the winter, to create surplus stores of food that would allow them to:

> … undertake more non-food producing tasks, such as trapping martens and wolverines in the mountains, where almost no food resources were available, or to send others to do this work for them. This also made it possible for them to expend some food resources on the production of luxuries, such as beaver kit robes. In turn, these luxuries provided them with more local diacritical signs of wealth… and thus… greater ability to acquire foreign and scarcer diacritical signs of wealth… to exchange with other Tutchone or foreign Athapaskans. (Legros 1985: 51)

In the Above Ash Component, the presence native copper, Hoodoo Mountain obsidian and Mount Edziza obsidian are indicative of trade relations with groups in southwestern Yukon and northwestern British Columbia; certainly the presence of Edziza obsidian confirms either direct, or at least indirect, contact with costal societies. The presence of a piece of Tertiary Hills Tufacious Clinker indicates long distance trade to the northeast in the area of Fort Norman, Northwest Territories. Similarly, the BAC contains evidence of southward trade as indicated by the presence of Mount Edziza and Hoodoo Mountain obsidian. In both the AAC and BAC collections, the exotic material sample size was too small to allow for a significant comparison; the most that can be stated is that trade was occurring during both time periods.

Inter-component differences in the site-specific subsistence economy, as indicated by bone frequencies (NISP, Table 8.1), might indicate that the production of trade items was a more important activity during the Late Prehistoric period. Table 8.1 compares the relative frequency of species by component and I will suggest that the BAC tends to have higher frequencies of animals with greater food value than does the AAC. For example, the Yukon beaver, an animal with a modern adult weight ranging from 15 to 23 kg, represents 44% of the species present in the BAC, but is 15% less abundant in the AAC. Further, the incidence of muskrat (1 kg) is up 22% in the AAC, and snowshoe hare (1-2 kg) increased by 8%. Conversely, moose and caribou are down 6% in the AAC. Fish species are also down 23%. Bear is actually up by 7% and is arguably a significant source of food, though it has been suggested they were not regularly hunted for that purpose in early times (McClellan 1975: 126-127). A statistical difference is observed in the cumulative abundance of species at a significance level of .05 (using a Kolmogorov-Smirnov test).

	Above Ash Component		Below Ash Component	
Species	NISP	%	NISP	%
Muskrat	33	34	6	12
Beaver	28	29	23	44
Snowshoe Hare	8	8	0	0
Marten	1	1	0	0
Bear	9	9	1	2
Moose	2	2	3	6
Caribou	0	0	1	2
Whitefish	9	9	13	25
Northern Pike	3	3	3	6
White Sucker	0	0	2	4
Chicken	1	1	0	0
Spruce Grouse	2	2	0	0
Total	96	100	52	100

Table 8.1: Comparison of relative frequency of species by component

There are a number of factors that could account for the observed changes in subsistence trends, such as cultural preferences, sporadic game shortage cycles and ecological transformation, not to mention the effect that taphonomic processes have had on the faunal assemblage. A sampling bias may also be responsible for observed variations in the faunal collections; for example, a different result might have been obtained if the excavations were conducted at an alternative locality within the site. However, if the data are accepted as being indicative of the past economy, then, a trend away from site-specific food production could be proposed. At a strictly hypothetical level, I suggest that the Late Prehistoric occupants of KdVa-8 may have been relying more on stored foods, and that faunal trends observed in the AAC are indicative of increased material goods production. Le Blanc (personal communication, 2002) has suggested that the use of stored food is a subsistence strategy that is potentially invisible in archaeological sites. Stored food, such as dried salmon, caribou or lake fish, will contain no bones and thus its use at a site will not be transmitted into the archaeological record. The increased use of stored food might explain the reduced prevalence of food items (particularly lake fish) in the AAC.

In the Northwest Coast of British Columbia and Alaska, increased evidence of salmon in the archaeological record, beginning during the Middle Pacific Period (3500 B.P.), is thought to indicate intensive use and storage of abundant resources that is directly attributable to sedentism, material production and social stratification (Ames 1998: 80). The degree to which the present data can be directly attributed to semi-sedentary Tutchone-like groups who were actively involved in regional trade networks is ultimately a matter of speculation. Evidence for such an economy is arguably present in both components, however, variations in the two archaeological collections suggests that material goods production, similar to that described by Legros (1981), may have been a more important activity during the Aishihik rather than the Taye Lake phase occupation. I present this only as a tentative observation that needs further investigation, as the obvious inter-component similarities outweigh the potential differences.

Summary

In the western subarctic, poor site stratigraphy and preservation has been a limiting factor in most archaeological projects. Though this has also been the case at KdVa-8, traditional knowledge has increased the interpretive value of the archaeological remains. It is not possible to confidently state that this relatively modern TK is pertinent to archaeological remains that may be four millennia old, yet archaeological research in the subarctic tends to suggest that land use in the boreal forest has not changed significantly during the latter half of the Holocene (see discussions by Shinkwin 1979, Workman 1978, Holmes 1986 and Anderson 1988). Evidence from KdVa-8 indicates that land use was similar during the two occupations of the site, suggesting that the use of TK is likely valid in this context. The examination of technology at KdVa-8 has indicated significant culture historical affinities with the southern Yukon. I have suggested that the transition from the Taye Lake to the Aishihik phase represents an *in situ* development, as is indicated by broad similarities in the settlement and subsistence patterns, though the nature of technological developments during late prehistoric times are best understood as a distinct technocomplex (Le Blanc 1984: 438-439) rather than a late phase of the Northwest Microblade tradition. Although earlier occupations are not present at KdVa-8, the Taye Lake phase here is considered to be ancestral to technological developments in the Northwest Microblade tradition.

References

Ames, K. M.

1998 Economic prehistory of the northern British Columbia coast. *Arctic Anthropology* 35(1):68-87.

Ames, K. M. and H. D. G. Maschner

1999 *Peoples of the northwest coast: Their archaeology and prehistory.* Thames and Hudson, London.

Anderson, D. D.

1968 A stone age campsite at the gateway to America. *Scientific American* 218(6):24-33.

1970 Akmak: An early archeological assemblage from Onion Portage northwest Alaska. *Acta Arctica* 16.

1988 Onion Portage: The archaeology of a stratified site from the Kobuk River, northwest Alaska. *Anthropological Papers of the University of Alaska* 22(1-2):1-164.

Andrefsky, W.

1998 *Lithics: Macroscopic approaches to analysis.* Cambridge Manuals in Archaeology. Cambridge University Press, Cambridge.

Campbell, J. M.

1961 The Tuktu Complex of Anaktuvuk Pass. *Anthropological Papers of the University of Alaska* 9(2):61-80.

1968 The Kavik site of Anaktuvuk Pass central Brooks Range, Alaska. *Anthropological Papers of the University of Alaska* 14(1):32-42.

Cinq-Mars, J.

1973 A propose de la signification archéologique d'un matériau découvert dans la region de la Rivière Keel (T.N.O). *Association Canadienne d'Archéologie Bulletin* No. 5:1-25.

Cinq-Mars, J. and R. E. Morlan

1999 Bluefish Caves and Old Crow Basin: A new rapport. In *Ice age people of North America: Environments, origins and Adaptations*, edited by R. Bonnichsen and K. L. Turnmire, pp. 200-212. Oregon State University Press, Corvallis.

Clague, J. J., S. G. Evans, V. N. Rampton and G. J. Woodsworth
1995 Improved age estimates for the White River and Bridge River tephras, western Canada. *Canadian Journal of Earth Science* 32(8):1172-1179.

Clark, D. W.
1983 Is there a Northern Cordilleran Tradition? *Canadian Journal of Archaeology* 7(1):23-48.

1987 Archaeological reconnaiance at Great Bear Lake. *Archaeological Survey of Canada, Mercury Series Paper* No. 136.

1992 The Archaic in the extreme northwest of North America. *Revista de Arqueología Americana* 5:71-99.

1995 Fort Reliance, Yukon: An archaeological assessment. *Archaeological Survey of Canada, Mercury Series Paper* No. 150.

Clark, D. W. and A. M. Clark
1993 Batza Téna trail to obsidian: Archaeology at an Alaskan obsidian source. *Archaeological survey of Canada, Mercury Series Paper* No. 147.

Clark, D. W. and R. M. Gotthardt
1997 Archaeological settlement survey at the Frenchman-Tatchun Lakes near Carmacks, Yukon, Canada. Report Submitted to Little Salmon-Carmacks First Nation and Yukon Heritage Branch, Whitehorse.

1999 Microblade complexes and traditions in the interior northwest, as seen from the Kelly Creek site, west-central Yukon. *Heritage Branch Government of the Yukon Hude Hudän Series, Occasional Papers in Archaeology* No. 6.

Clark, D. W. and R. E. Morlan
1982 Western subarctic prehistory: Twenty years later. *Canadian Journal of Archaeology* 6:79-93.

Clark, J. G. D.

1951 Folk-culture and the study of European prehistory. In *Aspects of Archaeology in Britain and beyond*, edited by W. F. Grimes, pp. 49-65. H. W. Edwards, London.

1953 Archaeological theories and interpretation: Old World. In *Anthropology today*, edited by A. L. Kroeber, pp. 343-360. University of Chicago Press, Chicago.

Cody, W. J.

2000 *Flora of the Yukon Territory*. 2nd ed. NRC Research Press, Ottawa.

Cook, J. P.

1975 Archeology of interior Alaska. *The Western Canadian Journal of Anthropology* 5(3-4):125-133.

Cwynar, L. C. and R. W. Spear

1991 Reversion of forest to tundra in the central Yukon. *Ecology* 72(1):202-212.

1995 Paleovegetation and paleoclimatic changes in the Yukon at 6 ka bp. *Géographie Physique et Quaternaire* 49(1):29-35.

Denton, G. H. and W. Karlén

1977 Holocene glacial and tree-line variations in the White River Valley and Skolai Pass, Alaska and Yukon Territory. *Quaternary Research* 7:63-111.

Dixon, E. James

1985 Cultural chronology of central interior Alaska. *Arctic Anthropology* 22(1):47-66.

Franklin, U. M., E. Badone, R. Gotthardt and B. Yorga

1981 An examination of prehistoric copper technology and copper sources in western arctic and subarctic North America. *National Museum of Man Mercury Series, Archaeological Survey of Canada Paper* No. 101.

Gates, C. C., R. O. Stephenson, H. W. Reynolds, C. G. van Zyll deJong, H. Schwantje, M. Hoefs, J. Nishi, N. Cool, J. Chisholm, A. James and B. Koonz

2001 *National recovery plan for the wood bison (Bison bison athabascae).* National Recovery Plan NO. 21. Recovery of Nationally Endangered Wildlife (RENEW), Ottawa.

Gotthardt, R. M.
1987 Selkirk Indian Band: Culture and land use study. Yukon Renewable Resources, Whitehorse.

1990 The archaeological sequence in the Northern Cordillera: A consideration of typology and tradition. *Heritage Branch Government of the Yukon Hude Hudän Series, Occasional Papers in Archaeology* No. 1.

1992 Archaeological investigations at Tatl'a Man, Central Yukon: Report on survey and excavations 1990 & 1991. Yukon Heritage Branch and Selkirk First Nation, Whitehorse.

Greer, S. C.
1993 Annie Lake: A southern Yukon mid-Holocene cultural complex. *Canadian Journal of Archaeology* 17:26-42.

1997 Traditional knowledge in site recognition. In *At a crossroads: Archaeology and First Peoples in Canada*, edited by G. P. Nicholas and T. D. Andrews, pp. 145-159. Archaeology Press, Burnaby.

Greer, S. C. and R. J. Le Blanc
1983 Yukon culture history: an update. *Musk-Ox* 33:26-36.

Hare, P. G.
1995 Holocene occupations in the southern Yukon: New perspectives from the Annie Lake site. *Heritage Branch Government of the Yukon Hude Hudän Series, Occasional Papers in Archaeology* No. 5.

Hare, P. G. and T. J. Hammer
1997 New data for the late persistence of microblades in the Yukon. Paper presented at the Paper presented at the 24th Meeting of the Alaska Anthropological Association, Whitehorse, Yukon.

Hare, P. G., D. Strand and S. C. Greer

2001 Southern Yukon ice patch research 2000: Understanding the phenomena. Paper presented at the 34th annual meeting of the Canadian Archaeological Association, Banff.

Heffner, T. A.
2002 KaVn-2: An Eastern Beringian Tradition archaeological site in west-central Yukon Territory, Canada. *Heritage Branch Government of the Yukon Hude Hudän Series, Occasional Papers in Archaeology* No. 10.

Holmes, C. E.
1986 *Lake Minchumina prehistory: An archaeological analysis.* Aurora Monograph Series II. Alaska Anthropological Association, Anchorage.

Holmes, C. E., R. VanderHoek and T. E. Dilley
1996 Swan Point. In *American Beginings: The prehistory and paleoecology of Beringia*, edited by F. H. West, pp. 319-323. University of Chicago Press, Chicago.

Irving, W. N. and J. Cinq-Mars
1974 A tentative archaeological sequence for the Old Crow Flats, Yukon Territory. *Arctic Anthropology* 11(supplement):65-81.

Ives, J. W.
1990 *A theory of Northern Athapaskan prehistory.* Westview Press and University of Calgary Press, Calgary.

James, M. A.
2002 X-ray fluorescence analysis of seven artifacts from site KdVa 8. X-ray Flourescence Laboratory, Deptartment of Chemistry, Simon Fraser University, Burnaby.

Johnson, F. and H. M. Raup
1964 *Investigations in the southwest Yukon: Geobotanical and archaeological reconnaisance.* Papers of the Robert S. Peabody foundation for archaeology 6(1): Phillips Academy, Andover.

Johnson, L. R. and D. Legros
2000 Journal of occurrences at the forks of the Lewes and Pelly Rivers May 1848 to September 1852: The daily journal kept at the Hudson's Bay Company trading post known as Fort Selkirk at the confluence of the Yukon and Pelly

Rivers, Yukon Territory by Robert Campbell (Clerk of the Company) and James G. Stewart (Asst. Clerk). *Heritage Branch Government of the Yukon Hude Hudän Series, Occasional Papers in Yukon History* No. 2.

Karklins, K.
1982 *Glass Beads*. History and Archaeology 59. Parks Canada, Ottawa.

Kindle, E. D.
1953 Dezadeash Map-area, Y.T. *Geological Survey of Canada, Memoir* 268.

Kooyman, B. P.
2000 *Understanding stone tools and archaeological sites*. University of Calgary Press, Calgary.

Kuzyk, G. W., D. E. Russell, R. S. Farnell, R. M. Gotthardt, P. G. Hare and E. Blake
1999 In pursuit of prehistoric caribou on Thandlat, southern Yukon. *Arctic* 52(2):214-219.

Lacourse, T. and K. Gajewski
2000 Late Quaternary vegetation history of Sulphur Lake, southwest Yukon Territory, Canada. *Arctic* 53(1):27-35.

Le Blanc, R. J.
1984 The Rat Indian Creet site and the Late Prehistoric Period in the interior northern Yukon. *National Museum of Man Mercury Series, Archaeological Survey of Canada Paper* No. 120.

1994 The Qugyuk Site (ObRw-1) and the archaeology of the eastern MacKenzie Delta. In *Bridges across time: the NOGAP archaeological project*, edited by J. L. Pilon, pp. 193-211. Occassional Paper No.2. Canadian Archaeological Association, Ottawa.

Legros, D.
1981 *Structure socio-culturelle et rapports de domination chez les Tutchone septentrionaux du Yukon au XIX^e siecle*. PhD, University of British Columbia.

1985 Wealth, poverty and slavery among the 19th century Tutchone Athapaskans. *Research in Economic Anthropology* 7:37-64.

1999 Tommy McGinty's story of crow. *Mercury Series Canadian Ethnology Service Paper* No. 133.

Lindsay, C. C., K. Patalas, R. A. Bodaly and C. P. Archibald
1981 Glaciation and the physical, chemical and biological limnology of Yukon lakes. *Canadian technical report of fisheries and aquatic sciences* 966:1-37.

Lucas, G.
2001 *Critical approaches to fieldwork: Contemporary and historical archaeological practice*. Routledge, New York.

Lyman, R. L.
1994 *Vertebrate taphonomy*. Cambridge Manuals in Archaeology. Cambridge University Press, New York.

MacDonald, G. M. and L. C. Cwynar
1985 A fossil pollen based reconstruction of the late Quaternary history of lodgepole pine (*Pinus contorta* ssp. *latifolia*) in the interior of Canada. *Canadian Journal of Forest Research* 15:1039-1044.

MacNeish, R. S.
1964 *Investigations in Southwest Yukon: Archaeological excavations, comparisons, and speculations*. Papers of the Robert S. Peabody Foundation for Archaeology 6(2). Phillips Academy, Andover.

Magne, M. P. R.
1985 Lithics and livelihood: Stone tool technologies of central and southern interior British Columbia. *National Museum of Man Mercury Series, Archaeological Survey of Canada Paper* No. 133.

Mann, D. H., A. L. Crowell, T. D. Hamilton and B. P. Finney
1998 Holocene geologic and climatic history around the Gulf of Alaska. *Arctic Anthropology* 35(1):112-131.

McClellan, C.
1975 My old people say: An ethnographic survey of southern Yukon Territory, Parts 1 & 2. *Mercury Series Publications in Ethnology Paper* No. 137.

1987 *Part of the land, part of the water*. Douglas & McIntyre, Vancouver.

Moodie, D. W., A. J. W. Catchpole and K. Abel
1992 Northern Athapaskan oral traditions and the White River Volcano. *Ethnohistory* 39(2):148-171.

Morlan, R. E.
1973 The Later Prehistory of the middle Porcupine Drainage, northern Yukon Territory. *National Museum of Man Mercury Series, Archaeological Survey of Canada Paper* No. 11.

Morrison, D. A.
1987 The Middle Prehistoric Period and the Archaic concept in the Mackenzie Valley. *Canadian Journal of Archaeology* 11:49-74.

O'Donoghue, M.
1996 Southern Lakes caribou recovery program: Progress report 1992-1996. Yukon Department of Renewable Resources, Whitehorse.

Osgood, C.
1936 The distribution of northern Athapaskan Indians. *Yale University Publications in Anthropology* 7.

Oswald, E. T. and J. P. Senyk
1977 *Ecoregions of the Yukon Territory*. Enivronment Canada, Ottawa.

Pienitz, R., J. P. Smol, W. M. Last, P. R. Leavitt and B. F. Cumming
2000 Multi-proxy Holocene paleoclimatic record from a saline lake in the Canadian Subarctic. *The Holocene* 10(6):673-686.

Powers, R. and J. F. Hoffecker
1989 Late Pleistocene settlement in the Nenana Valley, central Alaska. *American Antiquity* 54(2):263-287.

Pratt, K. L.
1998 Copper, trade, and tradition among the Lower Ahtna of the Chitna River basin: The Nicolai era, 1884-1900. *Arctic Anthropology* 35(2):77-98.

Ritchie, J. C. and G. M. MacDonald

1986 The patterns of post-glacial spread of white spruce. *Journal of Biogeography* 13:527-540.

Rogers, E. S. and J. G. E. Smith

1981 Enviroment and culture in the Shield and Mackenzie borderlands. In *Subarctic*, edited by J. Helm, pp. 130-145. Handbook of North American Indians. vol. 6, W. C. Sturtevant, general editor. Smithsonian Institution, Washington.

Schwatka, F.

1988 *A summer in Alaska in the 1880's: A popular account of the travels along the great Yukon River, from its source to its mouth, in the British North-West Territory, and in the territory of Alaska*. Reprint ed. Castle, Secaucus.

Shinkwin, A. D.

1979 Dakah De'nin's Village and the Dixthada site: A contribution to Northern Athapaskin prehistory. *National Museum of Man Mercury Series, Archaeological Survey of Canada Paper* No. 91.

Wahl, H. E., D. B. Fraser, R. C. Harvey and J. B. Maxwell

1987 Climatological studies number 40: Climate of the Yukon. Environment Canada Atmospheric Enviroment Service. Copies available from Climatological studies number 40, Ottawa.

Ward, B. C.

1993 *Quaternary Geology of Glenlyon Map Area (105L)*. PhD, University of Alberta.

West, F. H.

1967 The Donnelly Ridge site and the definition of an early core and blade complex in central Alaska. *American Antiquity* 32(3):360-382.

1981 *The archaeology of Beringia*. Columbia University Press, New York.

1996 Beringia and New World origins II. In *American Beginings: The prehistory and paleoecology of Beringia*, edited by F. H. West. The University of Chicago Press, Chicago.

Willey, G. R. and P Phillips

1958 *Method and theory in American archaeology*. University of Chicago Press, Chicago.

Workman, W. B.

1973 The cultural significance of a volcanic as which fell in the upper Yukon Basin about 1400 years ago. In *International conference on the prehistory and paleoecology of western North American arctic and subarctic*, edited by S. Raymond and P. Schledermann. University of Calgary Archaeological Association, Calgary.

1978 Prehistory of the Aishihik-Kluane area, southwest Yukon Territory. *National Museum of Man Mercury Series, Archaeological Survey of Canada Paper* No. 74.

Wright, J. V.

1995 A history of the native people of Canada: Volume I (10,000-1,000 B.C.). *Archaeological survey of Canada, Mercury Series Paper* No. 152.

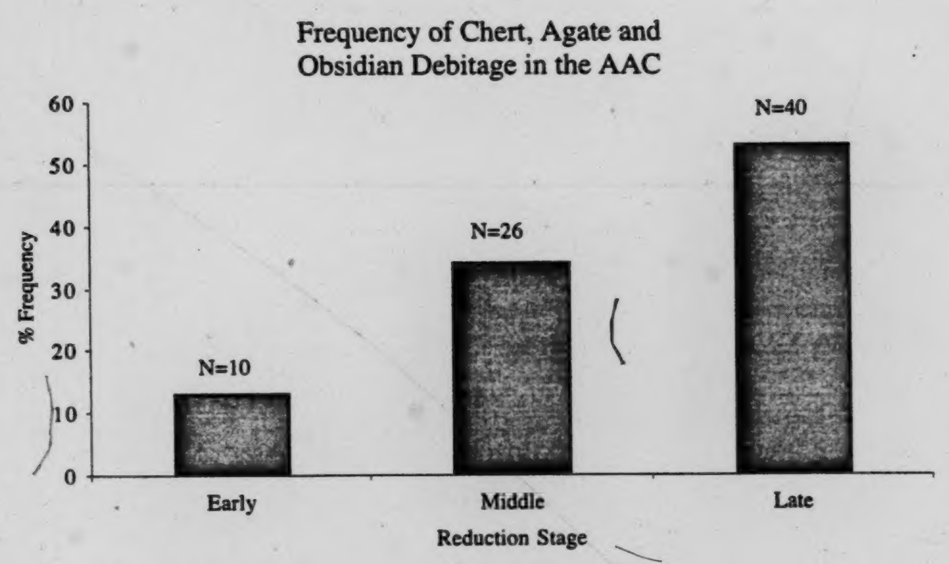
Yesner, D. R.

1989 Moose hunters of the boreal forest? A re-examination of subsistence patterns in the western subarctic. *Arctic* 42(2):97-108.

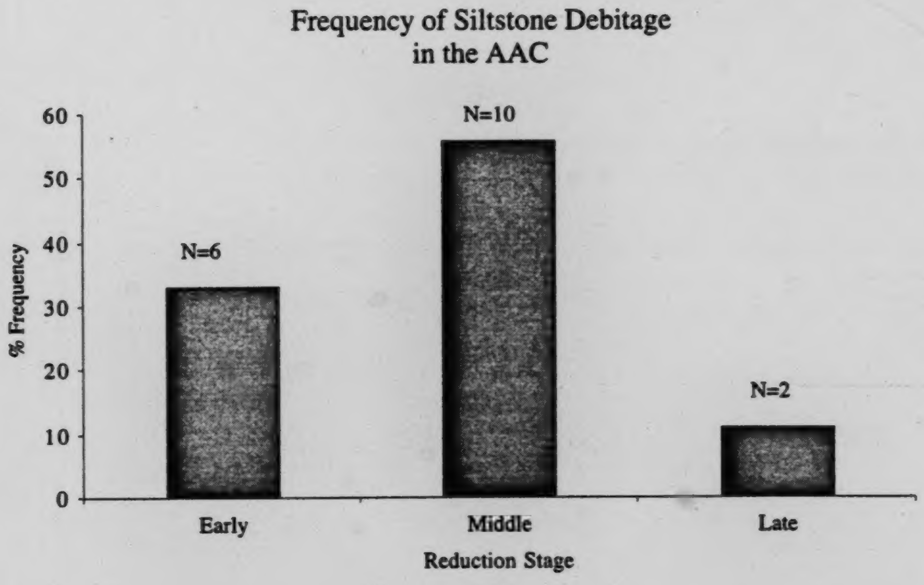
Youngman, P. M.

1975 Mammals of the Yukon Territory. *National Museum of Sciences, Publications in Zoology Paper* No. 10.

Appendix 1: Debitage



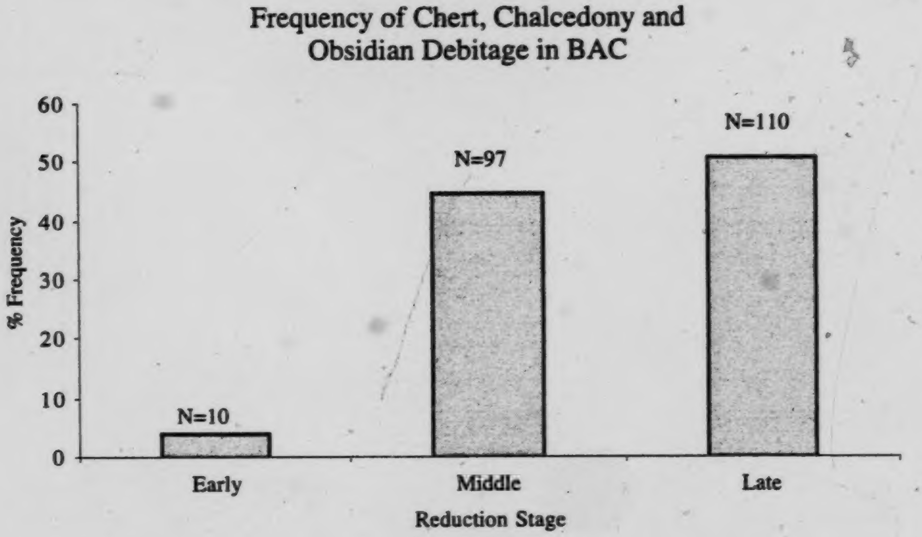
Appendix 1.1: Frequency of fine grained debitage in the AAC



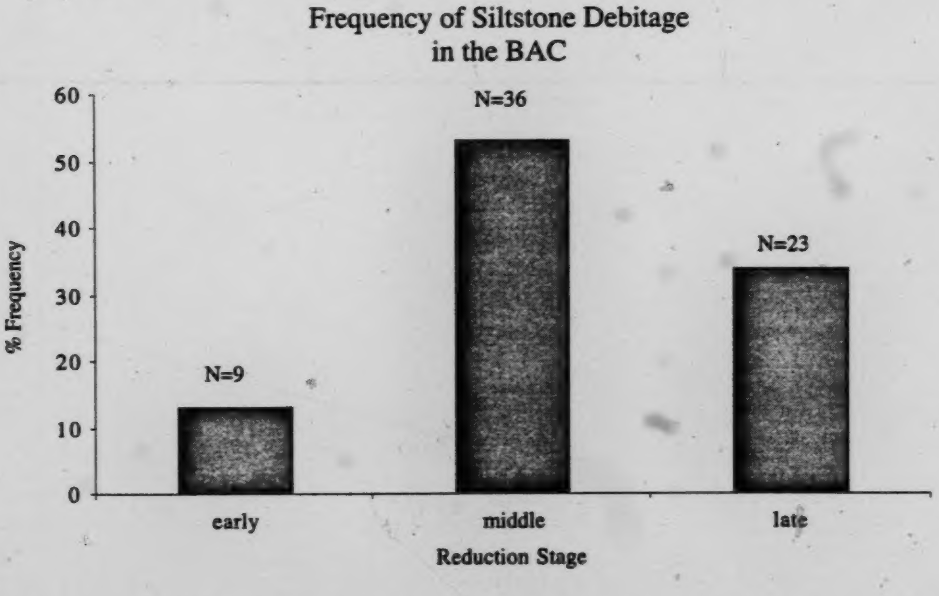
Appendix 1.2: Frequency of siltstone debitage in the AAC

	chert	obsidian	siltstone	quartzite	total
flake fragments	30	2	4	4	40
%	75	5	10	10	100

Appendix 1.3: Frequency of flake fragments by raw material in the AAC



Appendix 1.4: Frequency of fine grained debitage in the BAC



Appendix 1.5: Frequency of siltstone debitage in the BAC

	chert	obsidian	siltstone	quartzite	total
flake fragments	111	3	24	1	139
%	80	2	17	1	100

Appendix 1.6: Frequency of flake fragments by raw material in the BAC

Appendix 2: Radiocarbon Dates

Calibration of AECV-1560C: 3600 B.P. ±200
Tatlmain Lake

The calculations were performed using the following datafiles:
Calibration data: cal10.dta
Spline fit data: fit10s0.spl

Which means: Stuiver & Pearson, Pearson et al. 1986

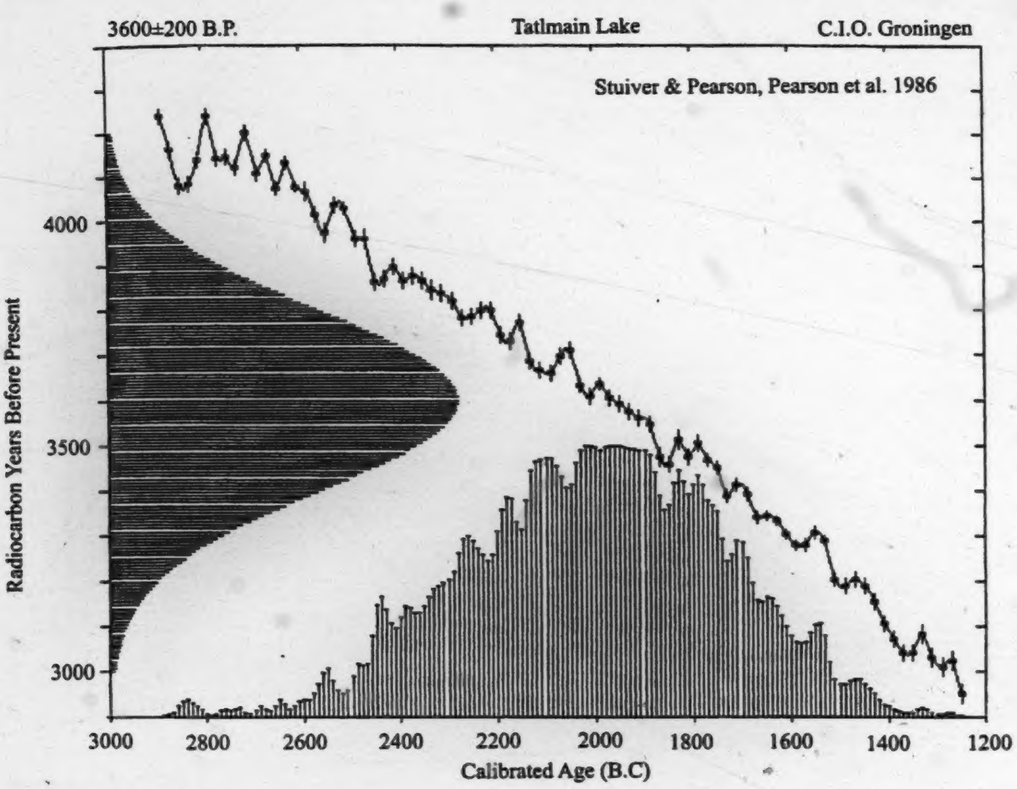
Integration step size (1/years): 2

Analysis of Probability Distribution:

Seattle/Groningen Method
1/2 sigma confidence interval analysis

68.3 % (1-sigma) confidence level yields the following ranges:
2280 cal BC... 2240 cal BC
2210 cal BC... 1730 cal BC
1720 cal BC... 1700 cal BC

95.4 % (2-sigma) confidence level yields the following ranges:
2570 cal BC... 2540 cal BC
2500 cal BC... 1510 cal BC


3600±200 B.P.
Tatlmain Lake
C.I.O. Groningen
Stuiver & Pearson, Pearson et al. 1986
Radiocarbon Years Before Present
4000
3500
3000
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
Calibrated Age (B.C)

The University of Waikato

Radiocarbon Dating Laboratory

Private Bag 3105
Hamilton,
New Zealand.
Fax +64 7 838 4192
Ph +64 7 838 4278
email c14@waikato.ac.nz
Head: Dr Alan Hogg

Report on Radiocarbon Age Determination for Wk- 9364

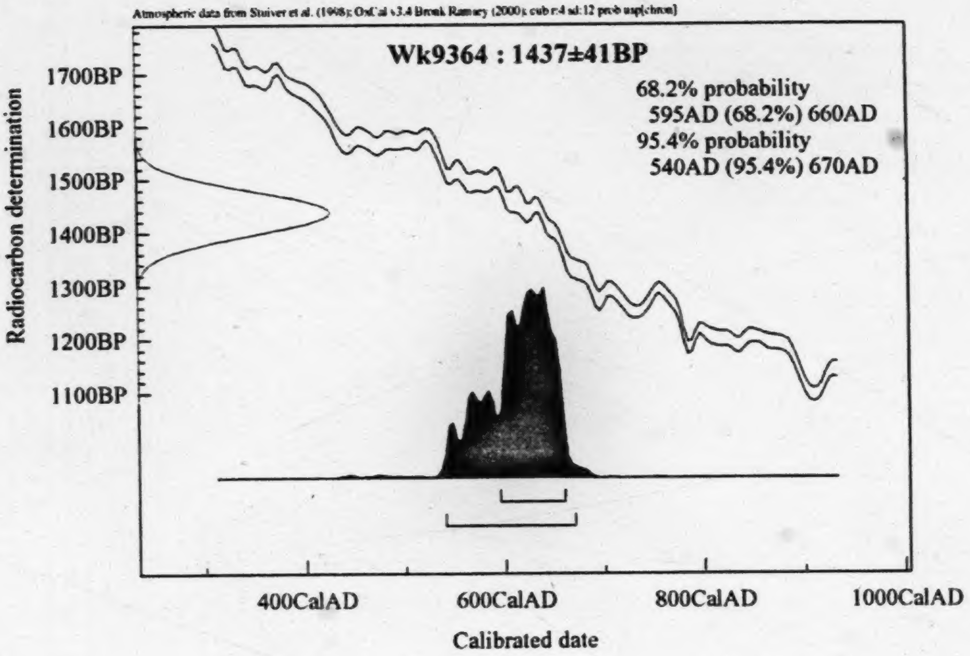
Submitter	C.D. Thomas
Submitter's Code	KdVa-8: F1
Site & Location	Tatlaman Lake, Central Yukon Territory., Canada
Sample Material	Moose metacarple; archaeological
Physical Pretreatment	Sample was cleaned, ground and visible contaminants were removed.
Chemical Pretreatment	Sample was decalcified in 2% HCl, rinsed and dried. Then gelatinised at pH=3 with HCl at 90 degrees for 4 hours. Rinsed and dried.

$d^{14}C$	-158.9 ± 3.5	‰
$\delta^{13}C$	-22.1 ± 0.2	‰
$D^{14}C$	-163.8 ± 4.2	‰
% Modern	83.6 ± 0.4	%
Result	**1437 ± 41 BP**	

Comments

AG Hogg
24/5/01

- Result is *Conventional Age or % Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1.217 .
- The isotopic fractionation, $\delta^{13}C$, is expressed as ‰ wrt PDB.
- Results are reported as *% Modern* when the conventional age is younger than 200 yr BP.


Atmospheric data from Stuiver et al. (1998); OxCal v3.4 Bronk Ramsey (2000); cub r:4 sd:12 prob usp[chron]
Wk9364 : 1437±41BP
68.2% probability
595AD (68.2%) 660AD
95.4% probability
540AD (95.4%) 670AD
Radiocarbon determination
1700BP
1600BP
1500BP
1400BP
1300BP
1200BP
1100BP
400CalAD
600CalAD
800CalAD
1000CalAD
Calibrated date

Appendix 3: Obsidian Source Data

From: James 2002

Obsidian Source Analysis: KdVa 8

ARTIFACT	Fe	FeB	Zn	Rb	Sr	Y	Zr	Nb	ZrB	Compt.	Ray.
Raw Data											
KdVa 8-148	3202	316	98	2242	0	1320	2162	168	228	23215	14333
KdVa 8-163	31825	5846	0	0	0	0	2667	143	313	60350	40452
KdVa 8-226	10311	1690	117	3652	1782	1662	10422	726	1988	76747	51266
KdVa 8-354	12111	1716	135	3731	1839	1459	9198	365	1861	64007	43397
KdVa 8-573	7421	963	88	4692	1014	1921	5605	487	1042	75588	51670
KdVa 8-704	23707	4097	1095	5396	0	6063	58303	7940	12124	61674	43465
KdVa 8-725	7462	1041	0	2208	2401	961	6508	305	1257	53251	35276
Edziza 3	12418	2045	634	3351	0	3548	33290	4717	7622	41068	31218
Normalised Data											
KdVa 8-148	1.481	0.146	0.045	1.037	0.000	0.611	1.000	0.078	0.105	10.738	6.630
KdVa 8-163	11.933	2.192	0.000	0.000	0.000	0.000	1.000	0.054	0.117	22.628	15.168
KdVa 8-226	0.989	0.162	0.011	0.350	0.171	0.159	1.000	0.070	0.191	7.364	4.919
KdVa 8-354	1.317	0.187	0.015	0.406	0.200	0.159	1.000	0.040	0.202	6.959	4.718
KdVa 8-573	1.324	0.172	0.016	0.837	0.181	0.343	1.000	0.087	0.186	13.486	9.219
KdVa 8-704	0.407	0.070	0.019	0.093	0.000	0.104	1.000	0.136	0.208	1.058	0.746
KdVa 8-725	1.147	0.160	0.000	0.339	0.369	0.148	1.000	0.047	0.193	8.182	5.420
Edziza 3	0.373	0.061	0.019	0.101	0.000	0.107	1.000	0.142	0.229	1.234	0.938

SOURCE DATA	Fe	FeB	Zn	Rb	Sr	Y	Zr	Nb	ZrB	Compt.	Rayl.
HooDoo Mtn. - Yukon											
Ave.	1.180	0.180	0.015	0.770	0.180	0.320	1.000	0.210	0.140	12.890	8.470
S.D.	0.120	0.020	0.005	0.060	0.050	0.020	0.000	0.020	0.020	0.490	0.300
Mt. Edziza Flow 3 - BC											
Ave.	0.380	0.050	0.014	0.100	0.000	0.110	1.000	0.140	0.160	1.280	0.880
S.D.	0.050	0.030	0.009	0.020	0.000	0.010	0.000	0.010	0.100	0.240	0.230